

MINUTES



**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
72ND EXECUTIVE COMMITTEE MEETING
OPEN SESSION**

January 23rd-24th, 2018

**Deutsches GeoForschungsZentrum (GFZ)
Potsdam, Germany**

**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
72ND EXECUTIVE COMMITTEE MEETING
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Participants

IUGS Executive Committee:

CHENG Qiuming (CQ; President), Stanley FINNEY (SF; Secretary General), Hiroshi KITAZATO (HK; Treasurer), Roland OBERHAENSLI (RO, Past President, Chair of Nominating Committee), Kristine ASCH (KA; Vice President), William CAVAZZA (WC; Vice President), Stephen JOHNSTON (SJ; Councilor), Amel BARICH (AB; Councilor), Edmund NICKLESS (EN; Councilor), Benjamin MAPANI (BM; Councilor)

Observers (attending parts of the meeting):

Özlem ADIYAMAN LOPES (UNESCO), Silvia PEPPOLONI (International Association for Promoting Geoethics, IAPG/Councilor for 2018-2022), Alan WOODLAND (German National Committee), Manfred Menning (Deutsches GeoForschungs Zentrum, GFZ), Greg BOTHA (35th IGC), Vijay P. DIMRI (36th IGC), Prakash R. GOLANI (36th IGC), Giuseppe DI CAPUA (Publications Committee, PC), Philip GIBBARD (International Commission on Stratigraphy, ICS), Francois ROBIDA (Commission on the Management & Application of Geoscience Information, CGI), Marianne KLEMUN (International Commission on the History of Geological Sciences, INHIGEO), Martina KÖLBLEBERT (INHIGEO), Chris KING (Commission on Geoscience Education, Training & Technology, COGE), Kevin PAGE (International Commission on Geoheritage, ICG), Alecos DEMETRIADES (Commission on Global Geochemical Baselines, CGGB), Rodolfo CAROSI (Commission on Tectonics and Structural Geology, TecTask), Yasukuni OKUBO (Task Group on Geohazards, TGG), Laurance Donnelly (Initiative on Forensic Geology, IFG), Magdalena SCHECK-WENDEROTH (International Lithosphere Program, ILP), Alexander RUDLOFF (ILP), Nic BILHAM (Geological Society of London), Ahmed BENLAKHDIM (Geological Service of Morocco), MA Yongzheng (China Geological Survey), LIOU Ya Hsuan (Geological Society Located in Taipei), Sarmad Sh. MAHMOOD (Arab Geologists Association, AGA), Hema ACHYUTHAN (Geological Society of India), Franz NEUBAUER (Carpathian-Balkan Geological Association, CBGA), Raimon TOLOSANA-DELGADO (International Association for Mathematical Geosciences, IAMG), Bruno VRIELYNCK (Commission for the Geological Map of the World, CGMW), WANG Meng (Young Earth Scientists Network, YES)

IUGS Secretariat:

HE Qingcheng (Director), WANG Wei (Executive Secretary), SITU Yu (Secretary), MU Langfeng (Secretary)

1. Welcoming Addresses

Alan Woodland, the President of German National Committee to IUGS, expressed the welcome to the participants in the 72nd EC Meeting in Potsdam, Germany. He reviewed the active geoscience community in Germany which was represented by the geoscience education and research in German universities, the public geoscience services provided by the Federal States of Germany, such as Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) and the geoscience research work conducted by the non-university geoscience-oriented institutes in Germany, such as the GFZ (Deutsches GeoForschungsZentrum). He introduced the collaboration between universities and non-university institutions in terms of student education and project implementation. He also mentioned the geoscience popularization for the younger generation and the next Congress of Young Earth Scientists (YES) which would be held in Berlin, Germany in 2019.

Ralph Watzel, the President of BGR and Secretary General of the German National Committee to IUGS, expressed his welcome to the participants in the 72nd EC Meeting. He made a brief introduction of BGR, which is the central geoscientific authority in Germany and acts as German geological survey on the federal level, providing advice and consulting in the field of geology for the federal government and German industry. He mentioned BGR's collaboration with IUGS and significant international cooperative projects and was looking forward to the 2019 YES Congress to be held in Berlin, Germany. He wished for an open and constructive discussion by the participants and a successful EC meeting.

Reinhard Hüttl, the Chair of the Board and Scientific Director of GFZ gave a detailed presentation on GFZ. As a member of the Helmholtz Association, the GFZ is the National Research Centre for Geosciences in Germany. In the presentation, Prof. Hüttl reviewed the history of GFZ and introduced major facts, including GFZ's missions, funding, staff, structure, research fields, as well as academic, technical achievements, international visibility, publications, and cooperation with universities and other research institutes in Germany.

Cheng Qiuming (CQ), IUGS President, warmly welcomed all the participants in the 72nd IUGS EC Meeting and expressed his gratitude to Reinhard Hüttl and the GFZ who hosted the Meeting with warm and thoughtful hospitality and the German National Committee to IUGS who provided consistent support to IUGS. He expressed thanks to Roland Oberhänsli (RO), IUGS Past President and Kristine Asch (KA), IUGS Vice President for the contacting work they did for the successful convening of the Meeting. His thanks also went to Ludwig Stroink and Christine Bismuth from the International Affairs Office of GFZ, Stanley Finney (SF), the IUGS Secretary General, Hiroshi Kitazato (HK), the IUGS Treasurer, and the staff of IUGS Secretariat for taking care of the logistics and document preparation of the meeting. He mentioned that GFZ was a world center in

geosciences conducting current geoscience research in comprehensive disciplines and was impressed with the achievements that GFZ had made.

2. Discussion and Approval of Agenda (S. Finney)

No modification of the Agenda was proposed.

3. 2017 Executive Committee and Bureau Meetings (Q. Cheng)

3.a. Approval of Minutes of the 71st EC Meeting in Paris

The Minutes of the 71st EC Meeting was distributed to all the participants in the meeting document package in advance. Stephen Johnston (SJ), IUGS Councilor, made amendment on the motion in 6.e. The amended motion is: "Motion to approve the investigation on the idea of putting in place the IUGS Conference Committee. This voting on this motion includes 1 against and 1 abstain".

Motion to approve the Minutes of the 71st EC Meeting with the amendment by SJ.

Approved

Items 3.b., 3.c. and 3.d. are moved to the Agenda of the Closed Session of the 72nd EC Meeting.

4. Executive Committee Reports

4.a. President's Report (Q. Cheng)

Before reviewing his work in 2017, CQ pointed out IUGS's global challenges, including sustainably increasing memberships and participation of adhering organizations, further improving contributions, enhancing international influence and better serving both the science and the society. Size and representation of union memberships not only determine the scientific activities, quality of service and financial situation, but eventually affect the strength and influence of the union. Recently, due to various political and economic and other factors, the memberships of IUGS have been declining notably. IUGS has 120 members, but only 69 members are active. This poses a huge challenge for IUGS to reverse this declining trend and to connect more countries to IUGS. CQ believed that this should be a top priority and he suggested IUGS find ways to demonstrate how the global earth science issues tackled by international collaboration could affect the national and regional problems that individuals or groups of nations may face. Additionally, CQ suggested IUGS convince nations and organizations to join IUGS in order to upgrade and share new knowledge and adopt cutting-edge technology.

CQ reported his work in 2017 in two sections: 1. Business meetings and activities, 2. New Initiatives and opportunities.

1. Business meetings and activities

CQ presented the Strategic Plan of IUGS proposed in 2012, which includes: increasing the participation of IUGS members in promoting geosciences, developing initiative of wide societal and applied interest, collaborating with UNESCO, ICSU, and Geo-Unions for developing new initiatives and improving visibility of IUGS through publications and presence at scientific forums. CQ pointed out that the Strategic Plan was still valid and his activities in 2017 are mainly based on it.

CQ reported that in 2017, he attended the 71st EC meeting, followed by three Bureau Meetings held respectively in Paris, Long beach and Seattle. Specifically, as the Bureau Meeting in Seattle was held during the 2017 GSA Annual Meeting, the Bureau had a good opportunity to communicate with GSA councillors as well as the U.S. National Committee for IUGS. CQ was invited to deliver a presentation “Big data and Converging Plates and Resources, Environment and hazards” beginning with an introduction of IUGS. Together with other EC members, CQ attended the GSA feed your brain-lunchtime enlightenment: "Forensic geology: the applications of geology to police and law enforcement" given by Dr. Laurance Donnelly, the Chair of the IUGS Initiative on Forensic Geology.

CQ attended several activities regarding RFG2018. CQ mentioned that RFG2018 is the main agenda item at all Bureau meetings and the conference information and promotional materials were widely spread via IUGS website, E-Bulletins and booth exhibitions at various conferences. CQ mentioned that he made specific efforts to bring leaders from geological surveys to attend the RFG2018 Conference, including a roundtable discussion session during the Conference. CQ had a meeting with leaders from Geological Survey of Canada (GSC) in Ottawa on June 2nd and a meeting with leaders from China Geological Survey (CGS) in Beijing on September 19th. Three areas of collaborations were discussed at these meetings: (a) Promote a new series of IGCP strategic projects or super IGCP in addition to the existing IGCP projects; (b) Promote and support RFG 2018; co-chair a session (Roundtable Forum) for Director Generals of Geological Surveys during the Conference; (c) Promote new IUGS-CGS-GSC joint initiative on Big Data and Geo-intelligence for Resources, Environment and Hazards Assessments.

CQ attended the IGGP Council Meeting in Paris, France on February 22nd, 2017. CQ mentioned that at the IGGP open session, there were various suggestions from the participants regarding improvement of the Geopark and IGCP program.

CQ reported that together with other Bureau members, he paid a visit to the venue of the 36th IGC in India and communicated with officials from Ministry of Mines, Ministry of Earth Sciences and Indian National Science Academy (INSA). CQ met with the Local

Organizing Committee and other senior officers and academicians in geosciences. During the visit, CQ outlined the initiative of international collaboration on research for Tethys Converging Plates and Resources, Environment and Hazards Assessments, encouraged the INSA to consider increasing the Indian rank of IUGS membership, welcomed more geoscientists from India to play leading roles in IUGS community and invited senior officers of Geological Survey of India (GSI) to attend the round table session at the RFG2018. CQ pointed out that the IUGS Bureau Members were warmly received by Indian colleagues, and were all confident that the 36th IGC would be a success.

CQ reported that ICSU and ISSC were voted for merge to form the International Science Council (ISC) at the general assembly held in Taipei on Oct. 23rd, 2017 and he participated in the voting process; it is calling for nominations for candidates for the new ISC Council at the moment. CQ mentioned that William Cavazza (WC) had participated in various meetings regarding the ICSU and ISSU merger on behalf of IUGS.

CQ reported that he was invited to attend 2017 China Mining Congress and Expo in Tianjin, China on Sept. 23-25th and China-ASEAN Mining Cooperation Forum on Aug. 23-26th. During the 2017 China Mining Congress, CQ attended the Forum for Directors General of Geological Surveys and at the Forum, CQ delivered a speech to encourage the relevant nations to join IUGS and support IUGS by listing some benefits to become members of IUGS. CQ pointed out that Argentina, Canada, Mexico, Morocco, Nigeria, Peru, Niger, Mongolia, Iran and Sudan attended the Forum for Directors General of Geological Surveys of 2017 China Mining Congress and Malaysia, Thailand, Indonesia, Philippines, Singapore, Brunei, Vietnam, Laos, Myanmar and Cambodia attended the China-ASEAN Mining Cooperation Forum and CQ had communicated with these participants, sent emails to invite them to join IUGS or promote their existing IUGS membership status and invited them to attend the RFG2018.

2. New Initiatives and Opportunities

CQ reported this section in the following 3 parts:

(1) Booth Exhibition at the Meetings

CQ mentioned that IUGS booth exhibition was set in large conferences including AGU, EGU (CGMW/IUGS/UNESCO), GSA etc. with financial support from the Secretariat Office and the presence at these conferences is essential not only for exposing the publicity of the IUGS but also for providing a base for IUGS EC and other members to increase interactions. CQ pointed out that proper materials including the annual reports and other promotional materials had been prepared by the Secretariat office and he expressed his sincere gratitude to Secretariat Office and China for covering all the costs.

(2) New Science Program

CQ pointed out that IUGS is one of the few international unions covering almost all geoscience disciplines, which gave IUGS unique advantages for playing leading roles in international collaboration and he believed that facilitating cross-disciplinary and convergent research and bridging natural science, social science and engineering as well as fundamental research and solution-oriented science and technology presented both a challenge and new opportunities for IUGS. CQ explained that IUGS was not only one of the few international unions covering almost all geoscience disciplines but also its adhering and affiliated organizations generate the most comprehensive geo big data as well as knowledge bases, which were essential for solving complex geo-problems. CQ proposed a Pilot Project “Tethys Converging Plates and Resources, Environment and Hazards” based on the current big scientific problem “the most recent orogenic activities of the two Young Orogens-Alpine-Himalayan Orogenic Belt (Tethys) and Circum-Pacific Belt”. Roadmap for the Pilot Project are: (1) Identify potential partners and sponsors at EGU 2018, RFG2018, China Mining, Africa Mining; (2) Kick off the project at the next EC Meeting; (3) Obtain preliminary deliverable results at the 36th IGC 2020 or final results at 2022 Interim Congress or 37th IGC.

(3) Center of Excellence

CQ suggested the foundation of the IUGS Centers of Excellence, the main features of the Centers are described as follows: (1) They are funded directly by IUGS members; (2) Their scope goes beyond the boundaries of their country; (3) Some of them are regional in scope, while others cover more than one region or are organized around a thematic issue; (4) They should support IUGS new initiatives, Big science program; (5) They should play the role as data center and base for meetings and training etc.

4.b. Secretary General's Report (S. Finney)

Since the 71st IUGS Executive Meeting in Paris in February 2017, SF organized an IUGS Bureau Meeting in Long Beach, California in July 2017, organized an IUGS Bureau Meeting in Seattle, Washington in October 2017, which included meetings with GSA Council and Joint GSA-AGI affiliated organizations and finally the 72nd IUGS Executive Committee Meeting in Potsdam, Germany. SF completed numerous items on List of Actions arising from EC and Bureau Meetings and much of the preparation for these meetings was carried out by the IUGS Secretariat Staff whose efforts deserve recognition. SF worked closely with the Secretariat Staff in determining the documents to prepare. SF expressed his gratitude to Kristine and GFZ for the great organization.

In November 2017, SF traveled to India with the rest of the IUGS Bureau to meet with the Local Organizing Committee of the 36th International Geological Congress.

SF represented the IUGS Executive Committee at a meeting of the IUGS Publications Committee in March 2017, and together with the IUGS President, SF represented IUGS at IGCP annual in Paris in February 2017. Finally, SF –along with vice-President WC-

attended the dedication ceremony for the GSSP for the Chattian Stage in Italy in May 2017.

SF organized votes for ratification of officers of IUGS constituent groups 2016-2020 by the IUGS EC and the IUGS-IGC Council; for ratification of six Global Heritage Stone Resource (GHSR) Proposals from the IUGS Commission on Geoheritage (Subcommission on Heritage Stone Resources); and organized vote for approval by the IUGS EC of members of Ad-hoc Review Committees for TecTask and ICS. Before the vote on the Global Heritage Stone Resource Proposals SF advised the Secretary General of the Subcommission on Heritage Stone Resources on refining the protocol for developing, approving, and ratifying GHSR proposals, and for determining the documentation to be submitted with each proposal.

SF prepared the 2016 IUGS Annual Report with the support from the Secretariat staff.

SF gathered photos and citations of 2016 IUGS Award Recipients and arranged for their publication in the E-Bulletin. He secured biographies and photos of the officers of the President, Secretary General, and Treasurer for publication in the September 2017 issue of *Episodes*. The biographies and photos of the two Vice Presidents have also been secured and submitted to *Episodes* for publication in the next issue, and biographies and photos have been requested from the two Councilors with terms of 2014-2018. Those for Councilors with terms of 2016-2020 and 2018-2022 will be requested in the coming months.

A major effort of SF was the compilation by country of leaders and voting members of all IUGS constituent groups, including IGCP projects. These compilations have been provided to leaders of national committees to IUGS for all countries at subscription level 4 and above. The purpose is to demonstrate to the national committee of each adhering member the residents who are leaders and voting members of IUGS constituent groups and thus the residents whose participation is supported by the IUGS subscription fee paid by each country.

SF revised the template for the Annual Report for Adhering Organizations (member countries) by adding questions from the IUGS Bureau to encourage discussions from and fuller participation of national committees in IUGS activities. Responses to these questions will be discussed on the second day of the EC meeting.

The extensive correspondence maintained by SF included organizations interested in affiliation with IUGS and a letter of Support for Recognition by UNESCO of 2021 as the International Year of Caves and Karst, as requested by from George Veni, Executive Director, National Cave and Karst Research Institute.

4.c. Treasurer's Report (H. Kitazato)

Hiroshi Kitazato (HK) reported that by Dec. 31st, 2017 the IUGS balance was USD 1, 412,688.54 (USD 1,234,504.38 in 2016), including USD 874,597.29 (USD 742,547.21 in 2016) in reserve account and USD 538,091.25 (USD 491,957.17 in 2016) in current account. USD 538,091.25 is in the current account in Japan, including USD 511,221.36, EUR 12,569.55, JPY 1,299,444 and EUR 18.50 in cash.

HK reported that the total income and expenditures of IUGS in 2017 amounted to USD 494,755.49 (USD 597,038.88 in 2016) and USD 401,008.60 (USD 499,247.90 in 2016) respectively, contributing to a net income of USD 93,746.89. This reflects a relatively optimistic financial position. The IUGS income in 2017 contains USD 400,640.69 of membership dues. USD 2000 is going to be paid for AAWG as its 2017 allocation.

HK analyzed the status of countries by their membership categories in 2017:

category	Active	Inactive	Total	Number of Countries paid for	
				2017	2016
1	24	44	68	11	4
2	14	3	17	10	3
3	14	2	16	11	1
4	6	2	8	6	-
5	-	-	-	-	-
6	2	-	2	2	-
7	4	-	4	3	1
8	5	-	5	5	-
Total	69	51	120	48	9

HK presented the alteration of Status in 2017:

Sri Lanka	Inactive→Active	IUGS gave Sri Lanka a waiver for previous year dues (2015) and they paid 2016, 2017 dues
Mongolia	Pending→Active	Mongolia has paid for 2017, but has not paid for previous years dues (2015,2016)
Costa Rica Gambia Kazakhstan Philippines Tanzania Zambia	Active→Pending	These 6 members have not paid dues for two years till the end of 2017
Bangladesh Saudi Arabia Spain Tunisia	Pending→Inactive	These 5 members have not paid dues for three years till the end of 2017

Yemen		
Rwanda		Rwanda applied for membership, but has not paid their dues and no contact point

Based on his correspondences with IUGS member countries, HK pointed out that there were 23 countries with no contact, including: Angola, Belarus, Belize, Bolivia, Burkina Faso, Cote D'Ivoire, Ecuador, Ghana, Iraq, Madagascar, Malaysia, Nicaragua, Panama, Paraguay, Peru, Philippines, Saudi Arabia, Somalia, Suriname, Uruguay, Venezuela, Yemen and Rwanda.

HK reported that 5 IUGS members, including Cuba, Iran, North Korea, Sudan and Syria were restricted by US Office of Foreign Assets Control (OFAC).

HK mentioned that in 2017, 19 IGCP projects had been paid with all together USD 102,000 and 1 project (USD 5,500) has not been paid.

HK pointed out that 35th IGC committee would pay USD 80,288.00 as a capitation fee for 35th IGC in the near future. This will be deposit to IUGS reserve in Japan. Yearly stock money, USD 5,000.00 for Emile Argand Award will be deposit to the same reserve account in Japan.

HK proposed 2 suggestions for the current IUGS finance: 1. IUGS income is largely sustained by annual membership fees of member countries. In this moment, IUGS budgetary conditions are good. But, IUGS needs more money for keeping financial conditions in stable condition; 2. External or extra budgets should be required. Each IUGS internal body is requested to get external funds as sorts of "matching funds".

HK informed the new bank information of IUGS account in Japan as follows:

Bank Name: MUFG Bank, Ltd., Shibuya Meijidori Branch

Swift Code: BOTKJPJT

Address: 1-15-21 Shibuya, Shibuya-ku, Tokyo 150-0002, JAPAN

Telephone: 03-3407-9731

Beneficiary's Name: International Union of Geological Sciences

Beneficiary's Address: Prof. Hiroshi Kitazato, Tokyo University of Marine Science and Technology, 4-5-7 Konan, Minato-ku, Tokyo 108-8477, JAPAN

Beneficiary's Account Number: 470-3084164 (US\$); 470-3084342 (EUR)

4.d. Optional reports by EC Vice Presidents and Councilors

In order to streamline the order of business it was decided that EC Vice President and Councilors report their activities during the relevant agenda items.

4.e. Permanent Secretariat's Report (Q. He)

4.e.1 Work Review of 2017

He Qingcheng reported that in 2017, the IUGS Secretariat prepared and organized EC meetings and Bureau meetings, including: 71st IUGS EC Meeting in Paris, France on February 15-18, 2017, 72nd IUGS EC Meeting in Potsdam, Germany on January 23-26, 2018, IUGS Bureau Meeting in Paris, France on February 14, 2017, IUGS Bureau Meeting in Long Beach, United States on June, 6-7, 2017 and IUGS Bureau Meeting in Seattle, United States on October, 23-25, 2017.

The Secretariat prepared IUGS exhibitions at major international events, including China Mining 2017, Tianjin, China on September 23-25, 2017, 2017 Annual Meeting of Geological Society of America, Seattle, United States on October 23-25, 2017 and 2017 Fall Meeting of American Geophysical Union, New Orleans, United States on December 11-15, 2017.

The major achievements of the Secretariat in 2017 include: Updating the Contact Database and Strengthened Links with IUGS bodies; improving the IUGS Information Management System; designing and distributing New Year E-Cards for IUGS Bureau and the Secretariat; fulfilling the design of the 2016 Annual Report of IUGS and mailed the hard copies of the Annual Report to IUGS constituent groups, adhering organizations and affiliated organizations.

He Qingcheng reported that IUGS secretariat operating funds from Chinese Government in 2016 and 2017, as well as the funding from IUGS were spent in an efficient and appropriate way.

4.e.2. Staffing Alternation of IUGS Secretariat

He Qingcheng reported that the Secretariat was composed of Prof. He Qingcheng (Director), Mr. Wang Wei (Executive Secretary), Ms. Li Wei (Secretary, absent and will be back in Feb. 2018), Ms. Situ Yu (Secretary, joined the Secretariat in Sept. 2017), Ms. Gu Yanfei (Secretary), Ms. Xu Yaqi (Secretary), Ms. Mu Langfeng (Secretary, joined the Secretariat in Sept. 2017) and Mr. Yang Chen (IT expert, joined the Secretariat in Apr. 2017).

4.e.3. Accounting of Funds of IUGS Secretariat

He Qingcheng reported the Expenditure of the IUGS Secretariat Operating Funds from Chinese government (2016) as follows:

Item	Amount (RMB)	Amount (USD)
Promotion Materials	206,200.00	32,046.00
International Travel	641,063.00	99,629.03
Labor Service	230,000.00	35,744.81
Domestic Travel	137,147.00	21,314.32
Office Equipment and Materials	26,337.00	4,093.09
Office Rent + Logistic service	228,600.00	35,527.24
Network service	70,000.00	10,878.86
Staff fee	250,000.00	38,853.06
Total	1,789,347.00	278086.41
Budget	1,800,000.00	279742.02

*Exchange Rate=6.4345 (January 18th, 2018)

He Qingcheng reported the Expenditure of the IUGS Secretariat Operating Funds from Chinese government (2017) as follows:

Item	Amount (RMB)	Amount (USD)
Promotion Materials	206,195.00	32,045.22
International Travel	754,641.00	117280.44
Labor Service	94,000.00	14,608.75
Domestic Travel	86,669.00	13,469.42
Office Equipment and Materials	169,424.00	26,330.56
Office Rent + Logistic service	228,600.00	35,527.24

Network service	70,000.00	10,878.86
Staff fee	300,000.00	46,623.67
China Mining Related	79,260.00	12,317.97
Total	1,988,789.00	309,082.13
Budget	2,000,000.00	310,824.46

*Exchange Rate=6.4345 (January 18th, 2018)

He Qingcheng reported the Expenditure of the Allocation for the IUGS Secretariat from IUGS Budget (2017) as follows:

Item	Amount (USD)
Visa and Insurance Fee	339.00
Taxi Fare	671.00
Furniture Rental Fee for Exhibitions	1,963.00
Suitcase and Airport Packing Fee	177.00
Luggage Transportation	176.00
Promotion	7,315.00
Laptops	3,897.00
Recording pens	365.00
Total	14,903.00
Budget	15,000.00

4.e.4. Work Arrangement for 2018

He Qingcheng reported that in 2018, the Secretariat would prepare and organize meetings including the 72nd EC Meeting and possible bureau meetings and exhibits at significant international events, including the 2018 EGU General Assembly, RFG2018 Conference, 2018 Annual Meeting of Geological Society of America and 2018 Fall Meeting of American Geophysical Union.

4.e.5. Proposal for IUGS Development from the Perspective of IUGS Secretariat

He Qingcheng pointed out several challenges IUGS is facing, including: influence of IUGS is decreasing as about 40 percent IUGS members are inactive or pending; there are a number of silent members who never respond emails from IUGS or are not contactable due to their invalid email addresses; promotional materials, such as brochures and posters at IUGS booth are not very attractive and need updating. HQ also reported that among all the Secretariat's correspondences in 2017, about 30 percent are undelivered notice or spam emails.

He Qingcheng proposed several questions for EC's consideration, including: How to increase IUGS's influence? How to make IUGS more efficient? How to make IUGS more visible? How to resume the contact with silent members? How to promote the IUGS website to more attractive? How to make our promotional items more attractive?

5. IUGS Committees

5.a. Publications Committee

5.a.1. Publications Committee Report (G. de CAPUA)

G. de Capua reported that the Publications Committee (PC) was composed of Dr. Brian Marker (Chair), Prof. Stanley Finney (IUGS Secretary General), Prof. Daekyo Cheong (Editor of Episodes), Prof. Peter T Bobrowsky (former Webmaster replaced in the Autumn of 2017 by Dr. Giuseppe di Capua), Dr. Fareeduddin (former Editor of Episodes) and Prof. M. Dolores Pereira (member). PC prepared the "Policy and Ethics for Publications" and the Statement was ratified by IUGS in October 2017. This Statement will be placed on the IUGS website and published in Episodes in March 2018.

G. de Capua stated that the Geological Society of London (GSL) had first refusal of proposed titles from IUGS activities. In 2017, 2 books were published and 7 books were at various stages of preparation; one new proposal has been accepted. It arises from the 35th IGC. The 36th IGC must be more productive. By November 2017, about US\$2560 was paid to IUGS; an additional sum of about US\$10560 will be due as publications currently in preparation are published. G. de Capua pointed out that books from IUGS initiatives and IGCP projects not published by the GSL can not be identified due to uneven availability of information. He suggested that 1 review copy of each book from an IUGS activity should be sent to the Editor of Episodes to aid dissemination and allow accurate records to be kept (already arranged for GSL books).

Episodes was smoothly handed over from Geological Society of India to Geological Society of Korea (GSK) between November 2016 and March 2017 and at March 2017, the

journal became online-only but with printed copies for subscribers. The new arrangements were notified to the IUGS community in the E-Bulletin, but there are still instances of members being unaware of the changes. Although the impact factor of Episodes fell to 1.18 in 2016, the journal is still attracting a good number of high quality papers with about 57% of manuscripts received during 2017 rejected. Next impact factor (for 2017) will be available in June 2018.

G. de Capua proposed several suggestions on the content of Episodes, including:

- Reports of key meetings, ad-hoc reviews, summaries of annual reports; Biographical information on IUGS officers should always be published;
- Each issue should contain either a keynote or major state-of the science review paper by an eminent geoscientist;
- Ensure the alternation of thematic and general issues of Episodes;
- Standard invitation letters for papers or thematic issues can be sent to anyone who is able to assist with contacts;
- Final reports for all IGCP projects must be published in Episodes with participants reminded at the right time.

The Local Organizing Committee of 36th IGC wished the IGC issue to be one out of the normal 4 annual issues of Episodes to ensure high quality papers. It was suggested that IUGS and the IGC Committee should have early discussions on the size, financing and printing of the publication in 2018-2019 to avoid last minute problems.

G. de Capua pointed out that Episodes Publication Guidance documents to the Editorial Board and Guest Editors had been maintained and updated and revised guidance documents for contributors and prospective editors were being finalized. He mentioned that attempts to recruit additional members of the Editorial Board were continued and PC needed the help from the IUGS Community.

G. de Capua reviewed the handover of the IUGS official website from Peter Bobrowsky to him and the improvement and standardization of the preparation work for E-Bulletins in 2017.

G. de Capua presented the next steps of PC's work, including: appointing new PC Chair; handover to take place at the next Publications Committee meeting; liaison with the Committee of the 36th IGC is needed for planning of the IGC issue of Episodes; The IUGS community should help in securing keynote and review papers, contribute to outreach, and review copies of publications from IUGS activities; Geological Society of Korea will introduce an online submission and review system for publications of Episodes.

5.a.2. Discussion of transfer of Episodes (S. Finney)

SF mentioned that Korean colleagues had done a good job in keeping archives,

uploading digital issues of Episodes and producing issues on regular schedule, but due to funding problem of Geological Society of Korea, there was no online manuscript submission-review system or the necessary financial support for Episodes manager. In yesterday's bureau meeting (held on January 22, 2018), a consensus that Episodes should not be a money-losing activity of IUGS had been reached and it had been primarily planned to put Episodes on GeoScienceWorld, a global geoscience journal website, where IUGS can get return when articles are read or downloaded. Therefore, a change will happen to the previous situation that authors are not charged for submitting and readers are not charged for downloading articles. However, more work should be done to check if the revenue from GeoScienceWorld can exceed the cost of the online manuscript system service (about 5000USD), the financial support for Episodes manager and the charge by GeoScienceWorld. More discussion between IUGS EC and PC are needed.

5.a.3. Discussion of IUGS website (G. de CAPUA)

G. de Capua first presented the one-year record of the visits to IUGS official website in 2017, which showed that weekly cycles were down from last year with average of 105 visits a day and around 740 visits a week. In addition, compared to 2016, total number of sessions dropped by 15% and total number of users dropped by 13%.

G. de Capua pointed out that among the 38,636 visits in 2017, only about 11% lasted more than 3 minutes and over 31,000 of the 38,636 visits were less than 1 minute in length and most of those were less than 10 seconds in length.

G. de Capua reported that United States (10.34%), China (5.68%) and India (4.73%) were the three countries who visited the IUGS website most frequently. It has been discovered that the session visits of Nigeria (10.35%) and Cote d'Ivoire (2.73%) are phishing efforts.

G. de Capua pointed out that total number of the page views dropped from 94,374 to 79,820 and the most popular pages in the Website include "Directory", "What is IUGS", "Event Calendar" and "Publications".

Based on some key observations, G. de Capua proposed the following suggestions for the future development of IUGS website: (1) The IUGS website needs to be re-designed to become more effective and attractive. The menu has to be re-shaped; (2) History, Vision, and Mission should be put more in evidence; (3) Affiliated organizations should regularly inform IUGS about key-events, important documents, significant initiatives, so as to include them in the IUGS website; (4) There is no information about IGCs before the 32nd IGC; (5) No link for "Global Partners"; (6) Social networks and E-Bulletin should be a way to increase visits in the IUGS website.

G. de Capua commented that the new website proposed by IUGS Secretariat was a good implementation, but vision and mission of IUGS, as well as annual reports of

affiliated organizations and adhering members were still missing.

At the end of his report, G. de Capua expressed his gratitude to the former webmaster, Prof. Peter Bobrowsky.

5.a.4. E-Bulletin and social media (K. Asch)

1. E-Bulletin

Kristine Asch (KA) reported that IUGS aims to better coordinate publication of information on news, events and achievements arising from IUGS activities (not science reports or papers). To obtain as much material as possible, IUGS requested all IUGS Commissions, Task Groups, Initiatives and IGCP projects to contribute material and also welcomes the contribution from IUGS affiliated groups and adhering organizations. KA points out that IUGS has set up a preferred format and a monthly timetable to help coordination and standardization of E-Bulletin.

KA encouraged more contributing to and reading of the E-Bulletin- which is an excellent method to reach out to the whole community of IUGS.

2. Social Media

Amel Barich (AB) reported that the social media promotion of IUGS is conducted mainly on Facebook (4398 followers), Twitter (363 followers), LinkedIn (503 followers) and Google Plus (15 followers).

AB reported that the content published on the IUGS Facebook varied from direct IUGS-related content (events, task group projects, etc.), to partner organization news and initiatives (ICSU, etc.) and general geoscience news and items of interest to the IUGS membership. The number of followers was growing in the same pace as in 2015 and IUGS gained another 1000 followers in 2016. AB reviewed that the most popular post on IUGS Facebook in 2016 was the IUGS Quick Report on Kumamoto Earthquake and the most popular one in 2017 was the announcement about the publication of Episodes Special Issue featuring Forensic Geology, which showed that publications and special issues are popular and audience appreciates Episodes free access. India, Pakistan and United States are the top three visiting countries of IUGS Facebook.

AB reported that in 2017, the audience of IUGS Twitter had grown from 21 to 363 and the organizational audience includes International Council for Sciences, Geological Society of London, EuroGeosurveys, American Geosciences Institute, etc. The top 2016-2017 Tweets were mainly about free downloading links for new Episodes issues, the ICS Chart and RFG 2018 and the top countries represented on IUGS Twitter were United States, United Kingdom and Spain. AB also presented the list of the followers' main interests, which showed that the top three interests are Science news, Geology and

Business and News.

AB mentioned that the number of members of IUGS LinkedIn had increased from 198 in 2015 to 503 in January 2018.

AB proposed the IUGS's communication strategy as follows:

(1) Social Media

It was suggested that: 1. IUGS should keep growing its audience in all existing platforms using targetted and impactful content. AB pointed out that with paid posts and advertisements, number of IUGS followers could increase by more than 200% while the organic content can increase the number by about 25%. 2. IUGS should explore new channels to reach the maximum of the IUGS international community such as in China where Facebook and Twitter are blocked. AB asked for the help from IUGS secretariat and national committees to identify and implement those channels. 3. Use more audiovisual material to promote the IUGS activities.

(2) E-Bulletin

It was suggested that IUGS ensure a regular content flow (all the IUGS structure and community invited to contribute).

(3) Website

AB mentioned that Anne Liinamaa-Dehls (the former executive secretary of IUGS Secretariat) and she worked on the new structure of the website and the IUGS Secretariat had taken in charge of the design and technical matters of the new IUGS website. AB pointed out that the make of the new IUGS website started in April, 2016 and a date of delivery needed to be determined.

(4) IUGS App

AB pointed out that with thoughtful structure and design, the IUGS App could be a sustainable investment for the IUGS in the long term and would increase its popularity among all geology users.

(5) RFG 2018 Event

AB reviewed that in 2017, IUGS gave special attention to promoting the Resourcing Future Generations initiative and its goals as a preparation for the RFG2018 Event in Vancouver, Canada in 2018. IUGS ran a joint marketing campaign between IUGS and RFG2018 Organizing Committee to insure a strong and coordinated promotion of the event.

Finally, AB mentioned that she would soon launch a social media survey in order to learn the social media preference of the IUGS community and its opinions on the development of IUGS social media.

SF encouraged news about events and international meetings held by IUGS bodies to be put into IUGS E-Bulletins and published on IUGS Facebook, Twitter and other media platforms, which are more efficient promotional channels than IUGS official website.

5.a.5. Publications Committee 2018-2022 (S. Finney)

SF reported that the PC was to be reconstituted in the middle of 2018 with a new Chair. SF had talked with other PC members about the candidate of the new Chair, and it is hoped that this can be decided as scheduled.

5.b. Finance Committee (W. Cavazza)

WC reported that the Terms of Reference of Finance Committee (FC) were drafted and circulated among EC members. WC has found three candidates for the FC members. A complete slate of 4 candidates will be submitted to the EC for ratification within several weeks.

WC emphasized that the main tasks of FC are (1) to identify new financial opportunities for IUGS; (2) to draft recommendation regarding IUGS budget; (3) to analyze the financial performance of IUGS bodies; (4) to present a financial report to the IUGS Council at IGCs; and (5) to arrange third-party auditing on the IUGS finances, which hasn't been done for years.

Roland Oberhaensli (RO) asked about the gender distribution of FC members and WC answered that there was no gender limit and he would like to see as many proposals as possible. CQ pointed out that the ratification on the slate could be conducted through electronic voting.

5.c. Strategic Implementation Committee (E. Nickless)

Edmund Nickless (EN), Chair of New Activities Strategic Implementation Committee (NASIC), first gave a brief introduction of NASIC and Resourcing Future Generations. EN reviewed the major achievements of NASIC, including: announcing the RFG initiative in Episodes, producing a 4-page brochure on RFG, organizing symposia and Town Hall events, speaking at meetings (for examples, see Annex D), promoting RFG on IUGS and other websites, organizing a symposium and launched a White Paper at China Mining on October 2014, holding a workshop in Namibia (July 2015), publishing an 80-page report

and issuing two Open Calls for top-up research grant funds, as well as a wide range of publications.

EN reported that since 2013, NASIC had made progress raising awareness among external publics, linking to IUGG and other geo-unions, attracting financial support from ICSU and UNESCO, reaching out to the social sciences and engineers, making links to the United Nations Environment Programme International Resources Panel and various Horizon 2020 projects and seeking to open a dialogue with policy makers in Germany and the UK.

EN reported that in 2018, NASIC will attempt to embed RFG in the work of IUGS as a whole, be highly visible at RFG2018 (Vancouver, June 2018) and attract more funding from IUGS, UNESCO and other organizations.

EN reviewed that RFG published two open calls. The First Open Call (from April to May of 2016) received 11 applications, among which 4 are from Australia, 1 from SE Asia, 3 from Africa (2 from South Africa) and 3 from Europe. The Second Open Call (from September 2016 to January 2017) received 21 applications, among which 4 are from South East Asia (including 2 from China), 8 from Africa (including 2 from South Africa), 6 from Europe, 1 from North America, 1 from South America and 1 from Australia. EN reported that applicants include post graduates, early career and established university researchers as well as staff of government agencies. The Second Open Call got a total sum of \$76.6k while the First Open Call got \$63.6k.

EN pointed out that RFG submitted 4 session proposals to and accepted by RFG 2018. It is expected that RFG 2018 will arrange about 150 sessions and a special emphasis will be on involving young scientists.

To further promote RFG, EN had made progresses in the following aspects: (1) EN participated in many meetings during the year and have been invited to speak at many of them; (2) Together with his colleagues, EN convened the 2nd Bryan Lovell meeting at the Geological Society of London; (3) EN contributed to the UNEP IRP report on resource governance; (4) Together with his colleagues, EN submitted an application to the Bellona Foundation (Oslo) to fund a two-day workshop in Moscow during early April 2018 with a view of engaging with the Russian mining sector.

EN presented the future plan with the emphasis on the preparation for the 4 sessions at RFG 2018, RFG's role in the 36th IGC (New Delhi, March 2020), the possible Third Open Call of RFG and widening remit of RFG to cover energy and water and/or to include Development Minerals.

SF asked about the abstract submissions to the 4 sessions proposed by RFG. EN answered that one session received 7 abstracts, two sessions received 3 abstracts respectively and one session received only 1 abstract. As the co-chair of these 4 sessions,

EN would invite more people to submit abstracts in the near future.

Invited Presentation: Manfred Menning (German Stratigraphic Chart and German translation of ICS Chart)

Manfred Menning from GFZ, spoke first of Germany's long tradition in geology, which extends back 200 years. He presented the Stratigraphic Table of German Compact 2012 (STGC 2012), which is the first table for a country in which stratigraphy and resources are combined in detail, contains Global Stratigraphic Scale (GSS), Regional Stratigraphic Scale (RSS) of Central Europe, as well as natural resources, reservoirs and few fossils. Stratigraphische Tabelle von Deutschland Kompakt 2017 (STDK 2017) is the most updated version of Stratigraphic Table of German Compact.

Manfred Menning explained that after political reunification of Germany in 1990, as the stratigraphic systems in East and West were inconsistent to each other and inconsistent to the International Stratigraphic Guide, it was necessary to make a unified stratigraphic chart of both states, namely Stratigraphic Table of Germany 2002 (STD 2002). In 2005, Explanations on STD 2002 was published in German.

In his presentation, Manfred Menning showed or elaborated on the following tables and research results:

- Stratigraphic Table of Germany 2002 (STD 2002)
- Stratigraphic Table of Germany 2016 (STD 2016), which is available since the 35th IGC in Cape Town in 2016
- Stratigraphic Table of Germany Compact 2012 (STGC 2012)
- Stratigraphic Table of Germany Compact 2017 (STDK 2017)
- Geological Time Scales 1917–1986
- Devonian time scales 1964–2017
- Devonian time scale of the STD 2016 using 'straight-line fit' method for calibration
- Devonian-Carboniferous-Permian Correlation Chart 2006 (Permian, part) used the time scale of STD 2002
- Cyclostratigraphy: 100 ka cycles in the Buntsandstein and Zechstein with quasi-isochronous boundaries using magnetostratigraphic evidence
- 100 ka cycles in the Lower Buntsandstein used for astronomical calibration of the RSS and GSS
- Latest Permian and Earliest Triassic magnetic zones of Central Europe
- Library transcription of selected stage names for the STD 2002 / ICS Chart

6. IUGS Commissions: Annual Reports and 2018 Plans

6.a. Stratigraphy (ICS) (P. Gibbard)

Philip Gibbard, ICS Secretary General, presented some basic information of ICS, including its Executive Officers (including voting members and non-voting members), members, tasks, ICS International Chronostratigraphic Chart (printed and digital version) and its translated versions, as well as ICS detailed stage and GSSP information.

ICS sponsored STRATI 2015 – 2nd International Congress on Stratigraphy in Graz, Austria with the attendance of over 360 participants from nearly 50 nations. ICS International Congress on Stratigraphy 2019 will be held in Milan Italy. Together with ISSC, ICS will sponsor session “SSP2.1. Integrated Stratigraphy - recent advances in stratigraphic systems and age modelling” at 2018 EGU General Assembly to be held in Vienna, Italy.

Recent GSSPs (Global boundary-stratotypes) established (listed in stratigraphic order):

- base of the Chattian Stage at Monte Cagnero, Italy, 2016
- base of Albian Stage at Col de Pré-Guittard, France, 2016
- base of Santonian Stage at Olazagutia, Spain, 2013
- base of the Toarcian Stage at Peniche, Portugal, 2014

GSSPs awaiting ICS approval and or ratification:

- base of the Sakmarian Stage (Lower Permian) at Usolka, Russia, 2017
- base of the Wuliuan Stage and base of the Miaolingian Series (Cambrian) at Balang Village, Jianhe County, eastern Guizhou, China , 2017
- base of the Chibanian Stage (Middle Pleistocene) at Chiba gorge, Japan, 2017
- divisions of the Holocene Series, 2015.

Other key updates to ICS International Chronostratigraphical Chart includes: (1) 12 versions during 2016, reflecting regular updates; (2) revised numerical age for base of Cryogenian System (from 850 Ma to ~720 Ma); and (3) translations into numerous languages including French, Chinese, Spanish (Castellano, Catalan, Basque), American Spanish, Japanese, Norwegian, Portuguese, Lithuanian, Dutch (two versions), Finnish and Russian.

P. Gibbard presented ICS Science Plan for 2016 to 2020: (1) new ICS Executive and many new Subcommission Officers; (2) renewed focus on the completion of the chart; (3) GSSP proposals involving work across all the subcommissions; (4) Subseries/Subepochs definition: formal or informal; (5) Subdivision of the Holocene; (6) ISSC: advice, stratigraphic articles and need to produce a new edition of the International Stratigraphic Guide; (7) revisions to Statutes: new positions of Informatics Officer and Graphics Officer;

integrity of votes; professional behavior; (8) 'Anthropocene'.

6.b. Education, Training and Technology Transfer (COGE) (C. King)

Chris King, COGE Chair, first introduced the main objectives and membership composition of COGE.

The “International version” of the international geoscience education textbook, which has been drafted with internationally sourced photos and case studies, has been checked by experts and redrafted and is currently checked by proof-reader. Diagrams in the international version will be redrawn. It will be online published on the IUGS-COGE and IGEO websites before the RFG 2018 Conference in Vancouver in June and the International Geoscience Education Conference, GeoSciEd VIII in Brazil in July 2018. A suite of regional textbooks will be produced – published on the internet as free-to-download pdfs. The textbook has been approved by the International Geoscience Education Organisation (IGEO).

The “My Earth science educator story” initiative contains stories of 1000 words each and is aimed at giving encouragement and guidance to the next generation of Earth science educators. Stories are published weekly from January 2016 and so far 67 stories have been published.

On the Earthlearningidea website of free-to-download teaching activities, new activity is added every two weeks. On the website, there are totally 278 activities in English and 922 translations into 11 other languages (mostly Spanish, Catalan, Norwegian, Italian, German, Portuguese, Japanese and Polish). Current download rate is more than 40,000 per month and more than 3 million downloads overall. The website is accessible in 200 countries and more than 10,000 towns and cities worldwide.

Chris King reported that in 2018, focus in particular will be on:

- development of international geoscience education textbook
- reporting on the IPGG/UNESCO – IGEO Geoscience Education Survey
- continued progress of the Earthlearningidea and ‘My Earth science educator story’ initiatives
- contribution to the TROP-ICSU project on climate change

In 2018, COGE will focus on the contribution to conferences, including:

- Arabian Geosciences Union (ARABGU), African Association of Women in Geosciences (AAWG) and African Geoparks Network (AGN) conference ‘Earth sciences for society’, El Jadida/Marakesh, Morocco – 20-24 March 2018 – including day-long workshop for teachers
- ‘Resources for Future Generations’ conference, ‘Education, Outreach and Young

Leaders' strand, Vancouver, Canada – 16-21 June 2018 – including a geoscience communication short course

- VIII GeoSciEd international geoscience education conference, Campinas, São Paulo, Brazil – 22-26 July 2018 – including a two-day GET2class for teachers

In 2018, COGE will also focus on the contribution to IUGS E-Bulletin, including:

- Published. The 'Earth science educator stories' initiative
- Submitted. The Earthlearningidea initiative
- Planned by 16th February/March – if the report is near being finalised. The international survey of Earth science education report
- Planned by 16th April. The international textbook
- Planned by 16th May/June. Geoscience Information for Teachers (GIFT) conferences run annually in association with the EGU assembly
- Planned by 16th September. The RFG with its educational component Vancouver, June; the GeoSciEd VIII international geoscience education conference, Brazil, July 2018 - a review will be provided
- Planned by 16th October/November. The TROP-ICSU project – a review

As the Senior Officer of International Geoscience Education Organization (IGEO), Chris King also gave a 2017 annual report of IGEO. IGEO aims to promote geoscience education at all levels and to work for the enhancement of quality in the international provision of geoscience education and encourage all developments that raise public awareness of the geosciences, in particular among young students. Chris King introduced the senior officers of IGEO. The major products of IGEO include the International Conference on Geoscience Education (GeoSciEd), the International Earth Science Olympiad (IESO), Educational Session/s during the International Geological Congress, International Syllabus on Earth Science Education, Earth Learning Ideas (ELI) and Teacher Training Workshops.

In 2017, IGEO planned for the 8th International Conference on Geoscience Education (GeoSciEd) to be held on July 22-27, 2018 in Brazil and fulfilled 11th International Earth Science Olympiad held in Nice, France during August 21-30, 2017.

The IPGG/UNESCO – IGEO Geoscience Education Survey has been completed. This Survey comprises 149 educational questions and conducted across all Latin American countries and 37 other countries worldwide. Report on the findings from 37 countries worldwide has been drafted and will eventually be published by UNESCO.

6.c. Management and Application of Geoscience Information (CGI) (F. Robida)

Francois Robida, Chair of CGI, first introduced Mission and Vision of CGI and the composition of CGI Council Members (2016-2020). In 2017, CGI has 334 members in 74 countries (252 members in 65 countries in 2016). The Working Groups of CGI included:

- GeoScienceML Working Group (GeoSciML) – Oliver Raymond, Australia (before July 2017) and Eric Boisvert, Canada (since July 2017);
- EarthResourceML Standard Working Group (ERML) – Jouni Vuollo, Finland ;
- Geoscience Terminology Working Group (GTWG) – Mark Rattenbury, New Zealand;
- Geoscience Information in Africa - Network (GIRAF) – Mesfin Wubeshet Gebremichael, Tanzania /Ethiopia.

The GeoSciML v4.0 data transfer standard was accepted in 2016 by a unanimous vote of the Open Geospatial Consortium (OGC) Technical Committee and GeoSciML v4.1 data standard was ratified and published by OGC in March 2017. It is expected that its implementations by software developers from OGC community will be realized soon. GeoSciML v4.1 has been translated in Chinese.

ERML data standard was adopted in national and provincial Geological Surveys (Australia - Europe) mainly through its adoption by data sharing communities such as AuScope, INSPIRE/Minerals4EU and EGD and next versions (ERML v.3 and ERML Lite v.2) of both model will be published before the RFG2018 meeting.

In 2017, CGI participated in 2 CODATA meetings, including Inter-Union Workshop on 21st Century Scientific and Technical Data, Developing a roadmap for data integration and Science and the digital revolution: data, standards and integration.

The OGC/CGI Geoscience Domain Working Group, which was jointly created by OGC and IUGS/CGI, was initiated in March 2017. This working group focuses on the standards for borehole information (for science and industry) and standards for discovering and accessing 3D geological models.

CGI's work plan for 2018 includes:

- Preparation for RFG2018– prepare for the CGI session titled 'Geoscience Information Technology for the Next Generation', including competition organization for young geoscientists
- 3D group of CGI/OGC. Continue to push forward the work especially a strategy work plan of the newly established collaborating working group on 3D geosciences data
- GeosciML implementation after becoming an OGC Standard
- Continue to push forward promotion of CGI products and to draft a marketing plan
- Continue the development and implementation promotion of EarthResourceML
- Update the CGI website
- Publish the CGI newsletter regularly
- Publish more publications of CGI related issues within IUGS "Episodes"
- Represent the IUGS in Geoscience information matters
- More effective connection with CODATA

- Enhanced relation with RDA
- Councils to issue a 4-year future action plan of CGI in his region and working group for a more visible CGI
- Next CGI Council meeting will be held in June 2018 in Vancouver together with RFG2018

CGI held a competition to attract young scientists participate in the use and development of CGI standards and the winner will get the opportunity to participate in RFG 2018 Conference and present a new application of standards at the Conference.

6.d. History of Geological Sciences (INHIGEO) (M. Klemun)

Marianne Klemun, Secretary General of INHIGEO, reviewed the objectives of INHIGEO, which are to promote studies on the history of geological disciplines in an international context and to encourage national and regional organisations with the same purpose. By Jan. 1st, 2018, INHIGEO has twenty honorary senior members and 302 members from 59 countries. The annual membership ballot took place in April/May 2017 and eleven new members were elected and Slovakia is now a member of INHIGEO. INHIGEO approved the “History of Geoscience Section – Geological Society of Italy” as a new INHIGEO affiliated association.

The Annual Conference Yerevan, which was initiated as the 50th Anniversary INHIGEO Conference, was held on Sept. 12-18th, 2017. The Conference was organized by the Armenian Institute of Geological Sciences and the Armenian National Academy of Sciences and took place at the Armenian National Academy of Sciences in Yerevan, where the first meeting of INHIGEO was held in 1967. The Conference was markedly successful with 70 papers received and History of Geoscience: Celebrating 50 Years of INHIGEO launched.

The 25th International Congress on the History of Science and Technology (25ICHST) took place on the Praia Vermelha campus of the Federal University of Rio de Janeiro (UFRJ), Brazil in July 2017. The overall conference theme was “Science, Technology and Medicine between the Global and the Local”. INHIGEO held two symposia at this congress:

1. “History of Petroleum (origins, exploration and exploitation)”. Conveners were Silvia F. de M Figueirôa, William Brice and Greg Good;
2. “Multiple Spaces: Mapping Communication via Letters between Naturalists and Geologists”. Conveners were Marianne Klemun and Johannes Mattes.

Marianne Klemun reported the activities in 2018 are as follows:

- “Circulars” issued in March, June, September and December.
- Publication of 2018 Annual Record, May/June 2018 with country reports,

meeting reports, book reviews, short articles, obituaries.

- Papers on classic publications on geology and past IGCs in “Episodes”.
- Two books based on the two 2017 conferences.
- 43rd Meeting of INHIGEO, 12-22 November 2018

Marianne Klemun informed that the future INHIGEO Conferences will be held in Mexico City, Mexico in 2018, in Como/Varese, Italy in 2019, in New Delhi, India in 2020 (in association with the 36th IGC) and in Poland and Czech Republic in 2021 (last association with the 26th ICHST).

Marianne Klemun presented minor changes to INHIGEO Terms of Reference for forwarding to the IUGS Council, including: (1) the establishment of the “Affiliated Association” category in 2014; (2) renaming our annual publication in 2013 from INHIGEO Newsletter to INHIGEO Annual Record; (3) the importance of informative historical field trips which have been an important INHIGEO activity from its beginning.

6.e. Tectonics and Structural Geology (TecTask) (R. Carosi)

Rodolfo Carosi, Chair of TecTask, affirmed that the Commission on Tectonics and Structural Geology (TecTask) represented an initiative of Earth Scientists dedicated to stimulating communication and coordination within the international science community and to provide information to the public. The group encourages innovative research and continued education in Tectonics and Structural Geology, the growth of intellectual capital and hence the impact of our science on the wealth of the global society.

Rodolfo Carosi explained the officer changes of TecTask after the IUGS Ad-hoc review in September, 2017 and presented the work plan for the forthcoming period until the 2020 IGC, which was made based on the comments received from the ad-hoc review committee:

- Terms & Standard initiative with wiki-like Internet Platform
- Organizing a YORSGET conference as knowledge sharing, exchange and training opportunity for young scientists
- TecTask Web Portal as our arena for communication and exposure to the public and science community
- Monthly Web Cast Video Conference on ST & T with multi purpose including Terms & Standard discussions
- Overhaul of the Outcropedia portal
- Major contributor and player at the 2020 IGC in Delhi with organizing sessions, workshops and field forums.

Rodolfo Carosi reported that to improve TecTask's performance after the ad-hoc review, a discussion list to facilitate and channel the communications within the TecTask EC was created, the new structure of EC was communicated to all the TecTask officers, and the officer corps were informed about the outcome of the ad-hoc review and asked

again for their commitment to the mission and scope of the Commission. The community of structural geology and tectonics was also communicated with to gauge their responses to the restructuring efforts. Efforts were also made to improve the communication and visibility of TecTask.

Rodolfo Carosi reviewed major achievements in 2017:

- TecTask is developing MediaWiki, which is a wikipedia-like internet platform populated with terms and their definition which can be publically discussed by the enrolled members before they are elevated into a formal glossaries or dictionary;
- TecTask is organizing world monthly online seminars in structural geology and tectonics, which allow thousands of geology students and researchers from developing and developed countries to participate together in a worldwide periodic scientific event at a minimum or no cost;
- TecTask continued to offer training courses in developing countries, including Nepal, Colombia and Germany;
- TecTask contacted the organizing committee of the 36th IGC to propose a thematic session “Structural Geology & Tectonics – from Fundamental Research to Societal Impact”.
- TecTask has a new initiative entitled “Outcrop of the month” which started July 1st, 2017: The best outcrop pictures uploaded on the OUTCROPEDIA website (<http://www.outcropedia.org/>) will be selected each month and the best one will be published on both Tectask website and Facebook page. The monthly winner will receive a certificate from the TecTask commission.

TecTask will participate in the following congresses and workshops in the near future:

- Deformation Rheology and Tectonics (DRT) Congress in Tübingen, Germany in 2018;
- 2nd International Meeting of Young Researchers in Structural Geology and Tectonics (YORSGET 2018) in Monginevro, France in July 2018;
- The fifth Rock Deformation & Structures (RDS-5) conference of the Structural Geology & Tectonic Studies Group - India (SGTSGI) in New Delhi on Oct. 4-6, 2018;
- A workshop entitled "Fabric Analysis of Deformed Rocks – Integrating Magnetic & Microscopic Methods" at IIT Kharagpur in February 2019;
- 36th IGC: A thematic session “Structural Geology & Tectonics – from Fundamental Research to Societal Impact” and a pre-conference field trip “A Geological Journey through the Deepest Gorge on Earth: the Kali Gandaki Valley Section, West-Central Nepal”.

In the ensuing discussion WC and SJ –who participated in the recent ARC of Tectask- congratulated Prof. Carosi on the new developments and underscored the need for well defined goals consistent with the mandate of the IUGS and with the aims of IUGS Commissions; they should have clearly defined time lines with the aim being to complete these tasks by the 2020 Delhi IGC; and a clear set of deliverables should be defined for

each goal. It was also remembered that the lack of an international scientific association focused on Structural Geology and Tectonics represents an oddity. TecTask is well positioned to promote the birth of such association. The 2020 Delhi IGC will represent an opportunity to review the progress of TecTask and evaluate whether or not the commission should be continued (see also agenda item 8.a).

6.f. Geoheritage (ICG) (K. Page)

Kevin Page, Secretary General of ICG, reviewed the establishment of ICG as a new IUGS Commission at the 35th IGC in August 2016. It was formed by combining the existing Task Group on GeoHeritage and the Task Group on Heritage Stone, which are now subcommissions within ICG..

The Heritage Sites and Collections Subcommittee (HSCS) derives from the Geoheritage Task Group established in 2008. Its mission is developing partnerships with international organisations dealing with recognition, conservation, education and protection of geological heritage (e.g. UNESCO, IUCN, other IUGS commissions, ProGEO, Geoparks, (EGN, GGN, etc), etc. The Heritage Stone Subcommittee (HSS) derives from the Heritage Stone Task Group, first established in 2008. It established the concept of Global Heritage Stone Resources (GHSR) in order to raise awareness of natural stones as a cultural and historical resource (including selecting and designating important natural stone types, including unworked in-situ resources).

Kevin Page reported the proposed revised structure for the ICG as follows:

- Executive Committee: Chair, Secretary (elected every 4 years)
- Voting members: Proposed initially to include up to 20 members (reviewed every 4 years) – Role would include assessing proposals from WGs, prior to submission to IUGS Executive
- Correspondents (non-voting): A communication network for the Commission/ Subcommittee
- Working Groups (HSCS): With the exception of specific projects that the Executive may propose, it is expected that the majority of the work of the Subcommittee will be carried out through thematic Working Groups, including scientific assessment for UNESCO Global Geopark proposals, Global Geosites, Geomorphosites, Volcanic Geoheritage and Palaeontological Heritage.

Kevin Page pointed out that the new Terms of Reference had been submitted to IUGS Executive Committee for approval.

Key achievements of ICG in 2017 are as follows:

- Agreement on Terms of Reference for ICG and HSCS: submitted to IUGS in August 2016.

- HSCS WG on Scientific Assessment for UGG proposals consultation continues (for IUCN Geoheritage Task Group Work Shop, April 2018).
- Co-convening of two sessions at EGU (Vienna, April 2017): Geodiversity and Geoheritage (GM1.3/ EOS19) and Natural Stones and Geoheritage (EGU2017/session/ 22855)
- Participation in 14th European Geoparks Symposium, Azores in September 2017 (HSCS): Presentation of role of HSCS to EGN/ GGN.
- First six GHSR (Global Heritage Stone Resource) proposals ratified by IUGS EC: Portland Stone (UK), Larvikite (Norway), Petit granit (Belgium), Podpec limestone (Slovenia), Hallandia gneiss (Sweden), Carrara marble (Italy). Estremoz Marble, Villamayor Stone, Lede Stone submitted for approval.
- Heritage Stone Special Issue published by “Geoheritage” (Springer).
- Seven papers published related to the activities of the HSS and HSCS in refereed journals and books including Geoheritage and Episodes.

Key proposed activities of ICG in 2018 are as follows:

- Geoheritage Task Group (IUCN/ WCPA) Workshop on Global Geoheritage, International Significance and Biodiversity Values (Vilm, Germany, April 2018): Invited key note by KNP; focus on WH sites, Global Geosites and Geoparks (HSCS)
- EGU, Vienna (April 2018): HSCS/ HSS co-convened session with external partners Heritage Stone and Geoheritage sessions for the April 2018 (Session GM1.6/EOS16). (HSCS, HSS).
- Global Stone, Brazil (May 2018): BS and LP are invited speakers and seminar leaders
- RFG2018 (June 2018, Vancouver): Coconvening session on Geoheritage as a Societal Resource for Education, Environment, Culture and Tourism (Session: Education and Knowledge).
- ProGEO 2018 (June 2018, Chęciny, Poland): KP is member of Scientific Committee (ProGEO affiliated with IUGS).
- 8th International Conference on UNESCO Global Geoparks Italy (September 2018): Attendance proposed, subject to funding/ priorities
- Heritage Stone, Salamanca (October 2018): HSS-IGCP-637 Workshop and Symposium

SF pointed out that the latest version of the Terms of Reference of ICG will be discussed and modified at the Closed Session of the 72nd EC Meeting.

6.g. Global Geochemical Baselines (CGGB) (A. Demetriades)

Alecos Demetriades, Treasurer of CGGB, reported that the long-term mission of the Commission is: to standardize global-scale geochemical baselines methods, to prepare a global geochemical baselines database, and its representation in map form and to

document the concentration and distribution of chemical elements and species in the Earth's near-surface environment. This database is urgently needed by environmental and resource managers in all countries. To realize its long-term missions, CGGB promotes and facilitates the implementation of harmonised sampling, sample preparation, quality control, and analytical protocols in geochemical mapping programs.

Alecos Demetriades reported that on Oct. 22nd, 2014, IUGS signed an MOU with China Geological Survey for a 5-year duration for the support of the UNESCO International Centre on Global-Scale Geochemistry. The Commission, according to its IUGS mandate, takes the lead in establishing the standards for global-scale geochemical mapping and database development in collaboration with the UNESCO International Centre on Global-scale Geochemistry; whereas, the ICGG takes the lead in implementing those standards, in collaboration with the Commission.

Alecos Demetriades reviewed several achievements in 2017 as follows:

- Joint business meeting of IUGS CGGB and EGS Geochemistry Expert Group (20-21 April 2017, Vienna);
- Collaboration with the UNESCO International Centre on Global-Scale Geochemistry (ICGG), including the organization of a 5-day Workshop on Geochemical Mapping for “Belt and Road” Countries (25-29 Sept. 2017) and the first Newsletter of the Centre (December 2017);
- Collaboration with the Shenyang Geological Survey in the Global Black Critical Zone Geo-ecological Survey (BASGES).

Alecos Demetriades presented 2 examples for how the collaboration with a National Geological Survey leads in its participation in the CGGB's Global Geochemical Baselines project. He introduced that the Geochemical Database Development, which was one of the main tasks of CGGB, encouraged all Geological Surveys to make publicly available not only the data of continental-scale geochemical mapping, but also their regional geochemical data sets, and after a certain period of confidentiality the data of detailed geochemical surveys.

Alecos Demetriades presented a proposal concerning the compilation of an attractive book in simple language explaining the need of a Global Geochemical Baselines database for multi-purpose use, and this book would be presented at the General Assembly of the United Nations.

Alecos Demetriades reported the planned commitments in 2018 as follows:

- Finalisation and publication of Sampling Manual with accompanying videos (including sample preparation)
- Quality control procedures manual with examples
- Revision of the IGCP 259 Report by Darnley et al. (1995)
- Joint Business Meeting of EGS GEG & IUGS-CGGB, Madrid (May 2018)

- RFG2018: RS24 Technical Session and Workshop (lectures); Sponsoring 1-day field training workshop

7. IUGS Task Groups, Initiatives, Joint Programs: Annual Reports and 2018 Plans

7.a. Global Geoscience Professionalism (TGGGP) (B. Mapani)

Ben Mapani (BM) reported, on behalf of TGGGP Chair Ruth Allington, the major activities of TGGGP in 2017. Task Group Committee meetings were regularly held via Go-To-Meeting and in-person meetings were also held several times. Discussions and correspondence were made among members of the Task Group on how to be involved in program planning and promotion for RFG2018. Continuing improvements and adjustments were made to the Task Group website at www.tg-ggp.org and initial work started on planning a revamped website on a new platform.

Members of the Task Group were heavily involved in bringing content to sessions of EGU 2017 in Vienna in April organised by the IAPG, and close links between the TG and IAPG have been maintained through the year. Task Group member - the European Federation of Geologists (EFG) continued to be engaged with the European Commission in Brussels as a partner in two large resources policy related projects that touch on professionalism in geoscience in Europe, with connections to the broader international arena.

Members of TGGGP included European Federation of Geologists (EFG), Geoscientists Canada, American Institute of Professional Geologists (AIPG), Australian Institute of Geoscientists (AIG), Colegio de Geólogos de Bolivia (CGB), Geological Society of South Africa (GSSA), South African Council for the Natural Scientific Profession (SACNASP), Masyarakat Geologi Ekonomi Indonesia (MGEI), Colegio de Geólogos de Chile, National Association of State Boards of Geology (ASBOG) and Sociedad Colombiana de Geología Columbia.

The principal focus of activities during 2018 will be:

- To complete the survey initiated in 2016 of all the participating organizations in order to gather together necessary comparative information on each organization's structure, professional membership standards, code of ethics and conduct, etc.
- Advance the work of the newly formed CPD committee, with the objective of preparing and publishing a CPD Best Practices Guideline. The work will initially be to assemble enough information for a simple starter table on TGGGP CPD and then to undertake detailed mapping of CPD provisions and requirements and make it available.
- Continue to revamp the website and plan to have the work completed by RFG2018 in June.
- Actively engage in the CP sub-group of UNECE.

e. Maintain and grow the target list of potential new national member organizations and new collaborating organizations.

7.b. Geohazards (TGG) (Y. Okubo)

Yasukuni Okubo, TGG Chair, reported on the activities of the Task Group. In 2017, TGG organized a session entitled “Enhancing Scientific and Societal Understanding of Geohazards in an Engaged Global Community” at JpGU-AGU Meeting, May 20th -25th, at Makuhari Messe, Chiba City. TGG Chair joined the field survey for land slide in Chin State of Myanmar 17-21 June, 2017 in cooperation with International Consortium on Landslide (ICL). CCOP-IUGS Task Group on Geohazards (TGG) Joint Seminar was held at Waterfront Cebu City Hotel on October 18, 2017. About 40 people attended this seminar and discussed geohazard research and disaster risk reduction. The Task Group has newly established its home page <http://iugstgg.lab.irdes.tohoku.ac.jp/>, including summary figure of structure, prescription, scope, scientific rationale, objective, and output of the task group, list of scientific board, activities and announcements.

The work plan for the year of 2018 includes publication of Special Volume, one session at RFG2018 Vancouver, Workshop in Taichung and Nantou, Taiwan, one-day seminar at CCOP Annual Session to be held in Pusan, Korea, one meeting at IUGS Bureau meeting in Japan, and maintenance of the home page.

7.c. Isotope Geology and Geochronology (TGIG)

No report was delivered at the meeting.

7.d. Forensic Geology (IFG) (L. Donnelly)

Laurance Donnelly, IFG Chair, reported that the main objective of the initiative was to promote and develop the application of geology to policing and law enforcement around the world. IUGS-IFG aims to raise the global awareness of forensic geology by holding meetings and conferences, promoting research, teaching, training and the operational deployment of forensic geologists. The IUGS-IFG Committee comprises representatives from major geographical regions of the world and includes specialists from academia, industry, consultancy, operationally based forensic geologists, the police, law enforcement agencies and forensic organizations.

IUGS-IFG was active in outreach, knowledge exchange, capacity building and training. In 2017, IFG representatives were invited to deliver speeches to universities, academic societies and research institutions, or at professional conferences. IUGS-IFG held several training courses for university students and working staff from professional or governmental groups. IFG produced power-point presentations and information for

training courses held in Sicily, China, Singapore, Brazil, UK and Argentina. IFG built up Geoforensic International Network (GIN), which brings together forensic geologists, geoscientists and police/law enforcement officers from around the world to develop and promote forensic geology. IFG has planned to collaborate with the University of Canberra and National Centre Forensic Studies to hold a course on forensic provenancing at RFG2018.

In July 2017, IUGS-IFG published for the first time a themed issue of 'Episodes' on forensic geology and IUGS-IFG Chair was the special guest editor. Throughout 2017, IUGS-IFG progressed the writing of 'A Guide to Forensic Geology'. In 2017, a proposal was accepted by the Geological Society of London (GSL) to publish full papers from the 2016 congress in Cape Town as a special publication with title "Forensic Soil Science and Geology". Rob Fitzpatrick and Laurance Donnelly are editors and it is expected to be published in 2018.

7.e. International Lithosphere Programme (ILP) (M. Scheck-Wenderoth)

Magdalena Scheck-Wenderoth, ILP Secretary General, reported that the overall objectives of ILP were to elucidate the nature, dynamics, origin and evolution of the lithosphere through international multidisciplinary research projects and coordinating committees; promote multidisciplinary research projects of interest to geological (IUGS) and geophysical (IUGG) communities; achieving a fine balance between "addressing societal needs" –understanding solid earth processes, providing information for improved hazard assessment, sustainable resource exploration, geomedicine, and "satisfying scientific curiosity"; and promote young scientists.

ILP Task Forces and Coordinating Committees for the period 2016-2020:

TF II: Structural and rheological constraints on magma migration, accumulation and eruption through the lithosphere

TF III: The seismic cycle at continental transforms from seismological observation and forward simulation

TF IV: Fate of the subducted continental lithosphere: insight through analytical mineralogy and microstructures

TF VI: Sedimentary Basins

TF VIII: Lithosphere dynamics: interplays between models and data

TF IX: Subduction across scales (SAS)

CC-1 TOPO-EUROPE: 4D Topography Evolution in Europe: Uplift, Subsidence and Sea Level Rise

CC-4 MEDYNA: Maghreb-EU integrated research on geodynamics, geo-hazards, and applied geology in North West Africa

An ILP Bureau Meeting and Business Meeting were held, with the inauguration of President elect Prof. Hans Thybo and reports of all the ILP TFs.

The ILP road map to the year of 2020 includes the following:

Continue to activate the research councils to, in addition an annual contribution, attract funds for targeted programs;

Promote strong presence at international meetings;

Disseminate results through Special Volumes on the results of ILP research;

Strengthen the links with industry;

Explore opportunities for further cooperation in Integrated Solid Earth Sciences for mutual benefit;

Involving and promote more young researchers.

7.f. Human Activities and the Geosphere (B. Mapani)

B. Mapani reported on the newly proposed Commission “Human Activities and the Geosphere”. The aim of the new Commission is to examine the anthropogenic impacts on the Earth’s physical, chemical and biological environments by improving awareness of problems and opportunities; promulgating improved practices to secure more sustainable future development for mitigating hazards and risks, exploiting opportunities; and examining anthropogenic impacts on natural and cultural heritages. To encourage greater application of the geosciences in sustainable use of land, mineral, energy and water resources.

The new Commission would generate and communicate geosciences information for policy development; to grow multidisciplinary initiatives to create new knowledge and tools for solving environmental problems; to strengthen the interest of the geosciences community in environmental management and sustainable development; to make the essential contributions of geosciences to environmental development and environmental management known to planners and decision makers; and to engage key stakeholders involved in specific environmental management and sustainable development issues.

The scope of the new Commission includes geological and landscape changes caused or influenced by human activities; international health and safety standards, specifications and protocols relevant to site investigation, environmental assessment to identify good practices and areas that need improvement; evaluation of the costs (financial, deaths and health impairment) internationally and implications of these for economies, investment, development and insurance/reinsurance; improved classifications of anthropogenic landforms and deposits; improved characterization of anthropogenic changes to the hydrologic environment; good practices for describing, evaluating, monitoring and treating problems associated with human activities including contamination, pollution, ground instability caused by human activity, landfills and induced seismicity; good practices for securing the protection of archaeologically valuable sites and vulnerable species and biodiversity affected by anthropogenic activities; good practices for using anthropogenic deposits while minimising environmental and social impacts; stimulation of interdisciplinary research, training publications and technical guidebooks; and provision of advisory material aimed at governments, administrators, industry, land managers and other stakeholders who have environmental, social,

economic and financial interests on problems, opportunities and good practices.

Implementation would be through: scientific conference symposia and sessions; publications intended to improve awareness of issues and to collate, improve and promote better classification of deposits, investigations, standards and specifications and protocols on good practices; capacity building workshops for geoscientists especially in developing countries; outreach events and materials aimed at stakeholders e.g. government, planners, developers, and financial institutions; and working groups to focus on selected high priority issues. Progress will be reported through the IUGS website and reports in Episodes.

Discussions were made on scientific tasks and international partnership of the new Commission. Further discussions and vote on the establishment of the new Commission will be made at the closed session of the EC Meeting.

8. ARC Reports

8.a. Commission on Tectonics and Structural Geology

WC reported that the IUGS Executive Committee (EC) was required by its Statutes and Bylaws to undertake a formal review of all commissions and other bodies funded by the Union every four years. TecTask became an IUGS Commission in 2009 and has never been reviewed before. The ad-hoc review committee includes himself as the ARC Chair, SJ as the ARC Secretary, Peter Cawood and Olivier Lacombe as the ARC External Reviewers. The ad-hoc review committee met in the University of Turin on September 11th and 12th, 2017.

The ARC Chair outlined the Terms of Reference (TOR) of IUGS ARCs, presented background information for the review, reviewed the requirements for routine IUGS reviews of Commissions as per the Statutes and Bylaws, summarized the types of issues normally addressed during reviews, and outlined the overall process that would be followed during the TecTask review. Two of the main points highlighted were that 1) according to the IUGS Statutes and Bylaws, the normal lifespan of a commission is eight years, and 2) Commissions are to be goal oriented and are commonly tasked with putting in place standards or establishing baselines that can be employed by the broad Earth Science community. The success of TecTask has to be judged on the basis of its concrete accomplishments relative to the financial support it has received from the IUGS.

Dr. Rodolfo Carosi provided a presentation outlining many of the activities when he took over the leadership of the commission in 2016. Under the new leadership an attempt at revitalizing the Commission is being made. The ad-hoc review committee raised a summary of the main concerns as follows: there has been a lack of comprehension on the part of TecTask regarding the rules governing and goals of an

IUGS Commission; Some current TecTask goals are redundant or misguided; TecTask leadership is currently too numerous and without specific goals; The current financial organization is peculiar; The review of TecTask Annual Reports by the IUGS EC was unsatisfactory.

The Committee acknowledges the efforts made by the IUGS TecTask Commission leadership over the years to fill the void caused by the absence of an international scientific association covering the fields of structural geology and tectonics. At last, SJ introduced the recommendations that the Committee made: TecTask defines two or (at most) three main goals; the leadership of TecTask is reduced to a small, dedicated group; the process for the review of annual reports is revised.

8.b. Commission on Stratigraphy: presentation and discussion

HK, as the Chair of the ad-hoc review committee, made a brief report. The committee includes EN as the Secretary, Nigel Hughes, Paul Smith and himself. Main goals of the review are as follows: analyzing past performance; assessing the alignment of ICS objectives with the objectives and aims of IUGS; identifying ways to increase the impact and significance of the Commission including concrete objectives for the near future.

The review meeting was held in Geological Society in London on September 28-29, 2017. According to written reports and face-to-face interview and discussions, the review report has been drafted by four reviewers. The committee held that the Commission is in robust health, its outputs are remarkable and the voluntary contribution excellent.

Several recommendations have been given by the review committee including: the report of the immediately previous review is made available to future reviews and that for openness, the reports of all reviews or at least a summary are published on the IUGS website; IUGS should do more to promote both the work of ICS as 'a jewel in the crown', and how the Commission acts as a family, builds trust and advances internationalism; additional appointments to the Executive Committee might be necessary to share tasks within the Executive Committee more equitably and to take on new activities, such as raising external sponsorship; steps will be taken urgently to make payments centrally on the written authority of a nominated member of the ICS Executive Committee; encourage President to consult the subcommissions and recommend that basic studies are completed before beginning revisions; consideration will be given to issuing an Open Call for volunteers to serve on subcommissions; plans will be put in place as a matter of urgency to raise external sponsorship from these and other bodies, such as NSF, and that, if necessary, the President is actively involved in the dialogue with potential external funders; the scope to work with more generalist scientific societies such as GSA and GSL by organizing ICS-related sessions at flagship meetings might be explored; thought should be given to building a list of all published outputs on the Geodiversity database.

Philip Gibbard, Secretary General of ICS, responded that the ARC report had been

distributed to all the members of the Executive Committee and subcommittee chairs of ICS. He informed that there had been extensive and effective interactions with other groups at the sub-commission level.

8.c. ARC reviews for 2018

SF asked what groups would be subject to ad-hoc review during 2018. The overdue ad-hoc reviews include TGGGP, TGIG and the former Task Group on Geoheritage. The Executive Committee will discuss this topic further in the closed session.

9. IUGS Contact with OneGeology (F. Robida)

Francois Robida reviewed the history of OneGeology. It was initiated in 2007 by Geological Survey Organisations from around the globe and was opened in the 32nd IGC in Oslo, Norway in 2008. As a voluntary initiative, OneGeology has raised the level of geological survey information delivery across the world, made geology a global leader in the field of SDI & an exemplar of a scientific community working together and spawned many projects and initiatives across the world, such as the continental initiatives as OneG-E in Europe, US-GIN and CCOP project in Asia. Currently, OneGeology has 189 member organisations from 121 countries.

Francois Robida reported that based on interoperability principles (GeoSciML), OneGeology dealt with data on distributed servers and sent directly to web clients. OneGeology participants deliver map data through a standard OGC web service. All nations can serve their data through cookbooks, online help and buddy system and the list of metadata of maps/services is collected into a catalogue of services managed “centrally”. OneGeology portal can display or aggregate all the maps.

Francois Robida reviewed the main progresses of OneGeology in 2017 as follows:

1. The new portal was released in the end of 2017;
2. New website with updated cookbooks;
3. 3D OneGeology: In 2017, under the umbrella of OneGeology, OneGeology members (Geoscience Australia, The Canadian Geological Survey, The British Geological Survey, The French Geological Survey and the Polish Geological Institute) have teamed up with Academics (Monash University, the University of Western Australia, University de Lorraine and RWTH Aachen University) to deliver a new 3D geological modelling platform – The Loop. The next face to face meeting will be during the RFG2018 and it is expected that the Loop 3D geological modelling platform will initially be conducted over three years from 2018;
4. Achievements of OneGeology Consortium, including: continuing support for

existing 2D community after their strong request; coordination of activities across CGI/OGC and OneGeology; pushing forward 3D OneGeology; issues of engagement beyond Geological Surveys e.g. links to Data Seal of Approval/ ICSU WDS, etc..

At the end of his presentation, Francois Robida confirmed that OneGeology would participate in RFG 2018 in Vancouver, Canada.

10. RFG 2018 in Vancouver (S. Johnston)

SJ reported that the RFG 2018 was to be organized in Vancouver, Canada on June 16-21, 2018. Apart from IUGS being one of the organizing partner, four Canadian organizations partnering to deliver RFG 2018: Canadian Institute of Mining and Metallurgy (CIM) providing technical leadership and organizational and significant financial support; Geological Association of Canada (GAC) and Mineralogical Association of Canada (MAC) - the annual GAC-MAC conference to be held as part of RFG; and Canadian Federation of Earth Sciences (CFES) - the umbrella organization for earth science in Canada. RFG 2018 currently had 50 technical partners and 14 supporting partners, as well as 12 sponsors engaging with many companies and organizations. Partners would run sessions, meetings, short courses and field trips. It was expected that 3,500-5,000 participants would attend the conference.

Plenary and conference sessions had been designed to engage the broad multi-sector, multi-disciplinary audience with the focus on major resource issues, public outreach and young people. The main themes included Energy, Minerals, Water, the Earth, Education & Knowledge, and Resources & Society. Over 1,125 abstracts had already been submitted to date, still targeting 1,500-2,000. Call for abstracts was still open and extended to Feb 12, 2018.

The RFG conference will be highly relevant for the future development of natural resources - energy, minerals and water to meet human needs with ambitious goals of participation, collaboration, youth and outreach. The conference was underpinned by earth science – fundamental to resources, earth processes, environment, and the future – and societal issues related to the future of resources – indigenous, community, policy, ethics.

The current focus was abstract submissions and session planning, and ongoing support from IUGS was appreciated. The plenary program was expected to be completed and made public in early February.

11. IUGS-UNESCO

11.a. Earth Sciences at UNESCO (O. Adiyaman)

O. Adiyaman affirmed that UNESCO is the only United Nations organization with a mandate to support research and capacity in geology and geophysics and the International Geoscience Programme is the flagship in geosciences. The Earth Sciences and Geo-hazards Risk Reduction Section, Division of Ecological and Earth Sciences of UNESCO, is responsible for the International Geoscience and Geoparks Programme. The Section has its Paris Headquarters and 7 regional offices in Egypt, Indonesia, Thailand, Uruguay, Kenya, Italy and Kazakhstan.

O. Adiyaman reported on geohazard risk reduction at UNESCO:

International Platform on Earthquake Early Warning Systems (IP-EEWS): UNESCO promotes scientific knowledge exchange and international cooperation for the establishment of earthquake early warning systems worldwide.

School safety assessments using the UNESCO-VISUS methodology: UNESCO supports Member States in building capacities for assessing and upgrading the safety of their educational facilities through technical workshops, hands-on trainings and research activities.

Enhancing Disaster Risk Reduction and Strengthening Community Awareness through UNESCO Designated Sites: UNESCO encourages the identification of risks, protection from different hazards and the preservation of UNESCO-designated sites and their communities.

A holistic approach towards a disaster resilient built environment: UNESCO supports Member States in capacity building of the local construction sector through workshops, trainings and publication of guidelines about the important role of construction to create a disaster resilient environment.

The UNESCO Earth Sciences and Geo-hazards Risk Reduction Section is in charge of the management of the three Category 2 centers of UNESCO, including the International Center on Space Technology for Natural and Cultural Heritage under the Auspices of UNESCO (HIST), the International Research Centre on Karst (IRCK), Guilin, China and the International Center on Global-scale Geochemistry. At present, there are 127 UNESCO Global Geoparks, including 70 European UNESCO Global Geoparks, 52 Asian UNESCO Global Geoparks, 2 North-American UNESCO Global Geoparks, 2 South-American UNESCO Global Geoparks and 1 African UNESCO Global Geopark.

11.b. IUGS-UNESCO IGCP (O. Adiyaman)

Adiyaman affirmed that the IGCP has always built bridges between disciplines and between scientists, including young ones, with aims of stimulating cutting-edge research and sharing scientific knowledge for the benefit of all.

In 2017, 111 countries were active including 30 African countries, 8 Arab States, 27 countries from Asia-Pacific, 11 Latin America and Caribbean countries, 41 countries from European and North America and 3 Small and Developing States (SIDS).

In 2017, a total number of 135 IGCP project leaders came from 110 different countries. IGCP 630 project was led by 14 project leaders from 9 countries and 13 IGCP 637 project leaders came from 12 different countries. 46% of all participants were less than 35 years old and 47% of all participants came from the developing world. 25% of project leaders and 29% of participant scientists were women. This percentage increased in the young scientists group where about 34% of the participants were female.

In 2017, UNESCO worked closely with IUGS to mobilize global cooperation in the Earth sciences through the International Geoscience Programme (IGCP). 135 project leaders collaborated with at least 3360 project participants to deliver the objectives of 20 active IGCP projects. Thirty-five IGCP project meetings in 20 countries have successfully been organised by building bridges between disciplines and between 3360 earth scientists, including young ones, with aims of stimulating cutting-edge research and sharing scientific knowledge for the benefit of all. IUGS financial contribution supported directly 12 IGCP projects (out of 21 active IGCP projects) and over 15 IGCP annual meetings in 2017.

11.c. IUGS-Geoparks Network, IUGS representation (R. Oberhaensli)

Roland Oberhaensli reported that a couple of years ago the geosciences department in UNESCO was re-established. Geoparks and IGCP were put under one umbrella - International Geoscience and Geoparks Programme (IGGP), which was approved by the UNESCO General Assembly. This adjustment put IUGS in interaction with UNESCO on geoparks. IUGS President and Secretary General were now at the board of UNESCO geoparks and IGCP. IUGS would provide desktop scientific reviews for UNESCO Global Geoparks applications and World Heritage places with geological sites for the IUCN. A UNESCO Global Geoparks must have a geologist in its board, who should be active in the administrative management of the geopark. Geoparks were founded locally and grew from regional to national geoparks, adopting a bottom-up approach. IUGS undertook the review work of UNESCO Global Geoparks applications in 2017 and the meeting for approval of the aspiring UNESCO Global Geoparks was held in China in 2017. IUGS had one seat in the geoparks board without the right of direct vote. Roland put forward suggestions to change the review form and the new form would be put into use in 2018. Roland had already sent out requests to find qualified reviewers to do the second round of review work starting in January 2018. The applications must have geological maps and reference list of papers published in international journals. Currently IUGS was considering how to thank the reviewers, about 20 to 25 per year, for their contributions to the review work, preferably in a written format. Based on the review of IUGS, quite few geoparks received a yellow card and was requested for re-evaluation.

CQ raised a question about the visibility of IUGS in geoparks and recognition of the contributions of IUGS to geoparks.

RO responded that IUGS was delivering services to UNESCO and IUCN directly, but not to geoparks, and suggested that the IUGS President could contact UNESCO about the recognition of the IUGS contributions to geoparks.

WC commented that the change of the IUGS EC every four years might be a weakness for the Union to keep actively involved in big international organizations such as UNESCO and ICSU, which require many years to be familiarized with. Roland responded that was why the IUGS Commission on Geoheritage was delegated the task to form a relatively stable review team to do the evaluation, and suggested that the IUGS EC could rely more on the internal IUGS bodies to accomplish relevant tasks in order to maintain continuity.

11.d. International Consortium on Landslides (ICL) (R. Oberhaensli)

The World Conference on Disaster Risk Reduction was held in Sendai, Japan in 2015. The ICL, jointly supported by IUGS and IUGG, made real commitments to the Sendai partnership that would go from 2015 to 2025. World Landslide Forum was held every four years. IUGS contributed to the World Landslide Forum held in Slovenia in 2017. ICL had a journal named "Landslides", the impact factor of which reached 3.6. The 5th World Landslide Forum would take place in Kyoto, Japan in 2020. It was suggested that the Commission on Geohazards could actively participate in this meeting representing IUGS. Peter Bobrowsky was elected as the new ICL President.

12. Commission on Geological Map of the World (B. Vrielynck)

Bruno Vrielynck, member of the Executive Committee of Commission for the Geological Map of the World (CGMW), briefly reviewed the main activities in 2017.

The idea CGMW was born at the IGC in Paris in 1878. The idea of the Commission was postulated in 1910 at the 11th IGC in Stockholm, and established in 1913 at the 12th IGC in Toronto. The CGMW is responsible for designing, coordinating, preparing and publishing small-scale thematic Earth Science maps of the globe, continent, major regions and oceans.

CGMW maps are carried out in partnership with CGMW Statutory members that are national organizations responsible for solid earth and ocean science mapping of all the countries or territories (i.e. Geol. Surveys) of the World; Associate members, public or private organizations, interested in and supportive of the CGMW's work; in close coordination and with the support of UNESCO, IUGS and sponsors. The primary data and

workforce for CGMW mapping programs is provided by Geological Surveys and the Academia. CGMW's aim is to facilitate the circulation of the scientific information in order to ensure the best quality information provided in the syntheses.

Products completed in 2017 include Seismic atlas of the Messinian salinity crisis markers (vol 2), Update of the Geological map of the world SIG, Digital maps for education and research and Visio Terra web site. Current projects include Tectonic map of Arctica (TEMAR), Structural map of the eastern Pacific ocean, Geological map of South America, Tectonic map of Antarctica (new version), Magnetic anomaly map of the world (new version) and Gondwana geological map. The final product of these projects are expected at the CCMW GA of February 2018 . Projects in progress include International Quaternary Map of Europe (IQUAME), Structural map of the Caribbean, Geological globe of the world (new version), The Seismic Atlas of the Gulf of Lions (vol. 2) and Structural map of the eastern Pacific ocean. The upcoming projects including World map of the orogens, Tectonic map of the American Cordilleras and Sedimentological map of the world will be discussed at the CGMW GA in February 2018.

13. International Council on Science (ICSU)

13.a. Merger of ICSU and ISSC (W. Cavazza, Q. Cheng)

CQ thanked WC for following the merger of ICSU and ISSC, and RO for his attendance at relevant meetings.

WC reported that during the past year he attended several meetings concerning the merger of ICSU and ISSC, including the GeoUnions meeting in Potsdam in September to develop a common position on the merger. There was considerable debate on merging ICSU and ISSC into a single entity during the past few years. The vote in the General Assembly held in Taipei in October was overwhelmingly in favor of the merger and led to the formation of the new entity - International Council for Science (ICSU). The first meeting of the new body will be in summer 2018. The GeoUnions are trying to influence the decision process, which is a challenging task to because ICSU is a big organization. William commented that sometimes it was difficult to coordinate the efforts and develop a common position on behalf of the whole GeoUnions. He said that one member of the GeoUnions were putting forward a nomination for the Councilor of the new ICSU without asking for advice from other members of the GeoUnions. CQ commented that IUGS should also nominate strong candidates to compete for the Councilors of the new Council.

CQ added that IUGS could also nominate candidates to compete for three IGCP Councilors.

CQ explained that there is a new structure of membership for the new International Science Council, including two types of membership - national scientific bodies and international scientific unions, both of which have to pay membership fees and have the

right to vote. International scientific unions (about 36 members) had equal weight in voting as the national scientific bodies (122 Members, representing 142 countries), which means that unions could play an important role in the new ICSU.

13.b. Report on TROP-ICSU (C. King)

Chris King, reported on the Trans-disciplinary Research Oriented Pedagogy for Improving Climate Studies and Understanding (TROP-ICSU), which is a global project funded by the International Council of Science (ICSU). The objectives of the project are:

1. To establish online learning material promoting established good practise in fostering interdisciplinary thinking among school and university students across a sweep of academic fields, focusing particularly in key climate change-sensitive areas in the world. An important element would be embedding science communication skills in young and emerging researchers to facilitate their cross-border relations.

2. To design effective ways to take this interdisciplinary knowledge/understanding to the community, translating theoretical research into meaningful action on the ground. This would involve empowering young students (school and university level) and teachers in community centered initiatives to collect scientific data (citizen science) and/or to participate in the education and communication of fellow citizens about local issues surrounding environmental degradation. Headline issues would include biodiversity and ecosystem functions and services, agriculture/ animal husbandry and human health and diseases, including the origin of new epidemics.

3. Radiate the results of these community – based participatory initiatives beyond their local test beds, regionally, nationally and internationally. An important element will be the production of educational products and digital resources that can be anchored to on-line learning platforms and disseminated via internet (such as IMAGINARY).

The project budget was £300,000. The leading applicants were International Union of Biological Sciences (IUBS) and International Union for Quaternary Science. The supporting applicants were International Union of Soil Sciences (IUSS), International Mathematical Union (IMU), International Union of Geological Sciences (IUGS), International Union of Geodesy and Geophysics (IUGG), International Union for History and Philosophy of Science and Technology (IUHPST), International Union of Forest Research Organizations (IUFRO), African Union of Conservationists (AUC), IMAGINARY, Committee on Data for Science and Technology of ICSU (CODATA), and ICSU Regional Office for Africa (ICSUROA), Indian National Science Academy (INSA), Mongolian Academy of Sciences (MAS), National Research Foundation- South Africa, Universidad Tecnica Particular de Loja, Australian Academy of Science (AAS) and National Committee of Egypt.

The introductory meeting of the project was held in Paris, France on 20-21 April 2017

and a follow-up meeting was held in London in December 2017. IUGS supported the travel and accommodation expenses for Chris King. The website of the project was <https://tropicsu.org/>. Questionnaire 1 was launched to gather information from schoolteachers and translated into Catalan, English, French, German, Hindi, Italian, Japanese, Mandarin Chinese, Spanish (Ecuador), Spanish (Spain), Polish, Portuguese (Brazil). Questionnaire 2 was under preparation.

Timeline of the project was as follows:

Year 1: Organization of thematic discussions through regional/ global group meetings and workshops; collection and curation of available teaching/learning resources on climate change and biodiversity conservation across the globe.

Year 2-3: Implementation of Research-Based Pedagogical Tools, curriculum, outreach and public engagement modules.

Year 3: Evaluation of the efficiency and utility of outreach and citizen science programmes.

Evaluation of curricula and pedagogy would take more time, and would be part of Phase II of this proposal running in to the next triennium (2020-2023).

14. IUGS - GeoUnions - IUGG relations (Q. Cheng)

CQ reported that there were two GeoUnions meetings last year. One was held in Europe to prepare a statement to increase the voice of GeoUnions in the process of the merger of ICSU and ISSC. GeoUnions also met in Taipei during the General Assembly of ICSU to further discuss the merger of ICSU and ISSC. The GeoUnions hoped for some collaborations but no concrete proposals had been achieved yet. For the relations between IUGS and IUGG, it was hoped that both sides could have more and closer cooperation, for instance, a joint IUGS-IUGG meeting in 2022. The two unions both have congresses every 4 years, but 1 year apart, which increased the difficulty of coordination. The IUGS Bureau also discussed the other possibility of cooperation, a joint IUGS-IUGG sessions at major international conferences, which actually happened before. IUGS and IUGG had jointly sponsored and supported two programmes, ILP and ICL. For future cooperation, one option was to explore cooperation between the two unions to launch big science projects.

14.a. Joint IUGS-IUGG meeting (K. Asch)

KA reviewed the discussions in IUGS and IUGG that have occurred for many years. The recent discussions of IUGS and IUGG Presidents showed that both were positive. Joint meeting had been planned in the past, but did not succeed, because of:

1. Timing: both Unions organize their conferences traditionally every four years, but not at the same time, i.e. next IUGS congress is 2020, next IUGG congress is in 2019.

2. Organization of the unions: IUGG is strongly subdivided into eight comparatively

independent associations under IUGG umbrella which organize their own specific conferences every two years (2021, 2025, ...).

She suggested as a mutual topic “The Ocean Realm”- an actual and fresh subject for both Unions to identify with. Considerable means have been involved in marine research and mapping in geophysics and geology. The starting point could be the session at RFG in Vancouver proposed by HK and herself: “From Continental Shelf to Slope - Mapping the Oceanic Realm”: Multidisciplinary R & D contributions on geology, geophysics, biological, geochemical and bathymetric aspects, data sampling and acquisition, data analysis and their results, and innovative ways of data access. Integration of marine data across EEZ boundaries. The vision was to facilitate the development of an overarching structure to bring together science, society and policy makers for establishing scientific ocean management systems.

For future work, it was suggested that a small group within IUGS be established to investigate this topic. The International Lithosphere Programme (ILP) jointly sponsored by both IUGS and IUGG was invited to participate. It was proposed that sessions be initiated on the common topic “Ocean Realm” within each Unions conferences (IUGS 2020/2024) IUGG (2019/2023) with optimally conveners of both Unions IUGG and IUGS; and that mutual sessions be initiated at EGU and AGU.

A joint congress could possibly be realized in a long-term, if a frame of such a meeting would be worked out in a cross-Union working group with support of the Union’ Executives.

CQ commented that IGC was the IUGS flagship and widely-recognized congress and has been a tradition. IUGS was exploring the possibilities to hold inter-IGC conferences with relatively smaller scale and specialized topics related to IUGS’s new initiatives, just like RFG conference. The next such a conference could be held in 2022. The IUGS EC was considering and discussing the possibility to offer the opportunities of holding such inter-IGC conferences to the countries who failed in the bid for IGCs. Whether to hold a joint IUGS-IUGG meeting remained open for future discussions.

15. International Geological Congress (IGC)

15.a. 35th IGC (Cape Town) (G. Botha)

Greg Botha, Secretary General of the 35th IGC, reported that a total of 4235 people attended the 35th IGC and the details were shown in the table below:

		Super Early Bird	Early Bird	Standard	Walk-In		
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Delegate		264	1731	556	30	2581	
Student		16	284	31		331	
Pensioner		57	148	23	1	229	
Young Earth Scientist		12	72	2		86	
Accompanying Person						192	
During event registrations			44	170		214	
					Subtotal	3633	
IUGS Secretariat / IGCC members						16	
Board Member						7	
Local Organizing Committee						30	
Plenary speaker						10	
Specialist Invited Speaker / Guest						5	
Theme Champion						67	
Media						42	
Volunteer						35	
Complimentary						10	206
Sponsor						12	
Exhibitor Staff + Exhibitor delegate						222	
AGU registration						4	
SA Post Graduate delegate						64	
Geohost delegate						78	
					Subtotal	602	14.21%
					TOTAL	4235	

3640 oral and poster presentations were delivered. The ratio of oral to poster was approximately 2:1. 88 presentations were given by YES delegates. Abstracts were archived on the AGI's GEOREF system.

Plenary	10
Accepted - Poster	1163
Accepted - Oral	2310
Keynote	157

Removed from Programme - Poster (authors had not registered for the meeting by the deadline date)	490
Removed from Programme - Oral (authors had not registered for the meeting by the deadline date)	424
Rejected	177
Withdrawn by Author	399
	5130

Theme	No of Abstracts
A Dynamic Earth	405
Mineral Deposits and Ore Forming Processes	323
Geohazards	249
Mineral Exploration	196
Engineering Geology and Geomechanics	178
Environmental Geosciences	177
Phanerozoic Earth History, Stratigraphy, Time Scale	162
Sedimentary Processes - ancient to modern	161
Palaeontology and Palaeo-anthropology	160
Groundwater and Hydrogeology	148
Marine Geosciences and Oceanography	147
Petroleum Systems and Exploration	147
Climate Change Studies	143
Metamorphic Processes	132
Geoscience Data and Information Systems	130
The Deep Earth	124
Unconventional Hydrocarbons and Emerging Fuels	124
Basin Formation and Continental Margins	121
Magmatism - Settings, Compositions and Processes	114
Arctic and Antarctic Geoscience	96
The Proterozoic Earth	96
The Hadean and Archaean Earth	86
Geoscience Education and Public Communication	84
Gold Mineralizing Systems (sponsored by SEG and SGA)	78
Global Geoscience Professionalism and Geoethics	76

	Geoheritage and Conservation	74
	Proximal and Remote Sensing Technologies	73
	Rock Deformation and Structural Geology	73
T	Public Sector Geoscience and Geological Surveys	68
he	Mineral Resources Evaluation, Geostatistics, Mathematical	
legac	Geosciences	67
y	Geochronology	58
docu	Mineralogy	58
ments	Instrumental, experimental and laboratory developments	56
includ	Coal	55
e	Energy in a Carbon Constrained World	54
Africa	Surficial Processes and Landscape Evolution	54
's Top	Geosciences Benefitting Low-income Countries	52
Geolo	History of the Geosciences	50
gical	Applied Mineralogy and Geometallurgy	43
Sites,	Critical metals - a global perspective	41
Episo	Soil Science	41
des	Volcanology	40
speci	Resourcing Future Generations	39
al	Planetary Sciences and Meteorite Impacts	37
issue	Medical Geology	35
for	Isotope Geoscience	29
the	Mining Geology, Earth Resource Engineering	29
35 th	Evolution of the Biosphere and Biogeoscience	25
IGC		

The Great Mineral Fields of Africa and *South African Journal of Geology Transactions of the Geological Society of South Africa*. 24 field trip guidebooks were published and sold through GSSA.

15.b. 36th IGC in 2020 (New Delhi) (P. Golani)

Prakash R. Golani, Secretary General of the 36th IGC, reported that the Indian subcontinent would host the 36th International Geological Congress once again after a gap of 56 Years in 2020. The title theme of the 36th IGC is 'Geosciences: The Basic Science for a Sustainable Future'. Near surface geoscience and resource generation are given importance in science Program.

The Congress Authority is composed of the Secretary of the Ministry of Mines as Chair and the Secretary of the Ministry of Earth Sciences and President of Indian National Science Academy as co-chairs. The '36th International Geological Congress' - a not-for-profit society was established for organizing the event.. A nine member Governing Body is chaired by the Secretary of Ministry of Mines, Government of India and a five member Executive Committee of the Society has been constituted for overseeing the implementation of the preparatory activities. Prof. Vijay P. Dimri from the National

Geophysical Research Institute and N. Kutumba Roa, Director General (Ex-Officio), Geological Survey of India were nominated as President and Co-President respectively. Dr. P.R. Golani was appointed as Secretary General for the 36th IGC. Sub-Committees include Scientific Program, Field Trip, Finance, Legacy, Geohost, Sponsorships, Volunteer, Advisory, YES, Institutional and Ministerial Liaisoning. The Secretariat comprised Dr. S. Ghatak, D. Rout, Dr. H. S. Mandal and Anju C. S.

The detailed scientific program of the IGC followed the standard format of the IUGS and a Scientific Committee would oversee the program. The Program included: Plenary Lectures, Themes with multiple Symposia, Workshops, Short Courses and Field Trips. Science themes fell in the broad categories of: Geosciences for Sustainable Future, Fundamental, Economic Geology, Geosciences for Near Surface, Geosciences-Evolution, History, Heritage & Ethics, Planetary Sciences. A total of 42 themes were included in the First Circular.

Various publications planned are: *Geodynamic Evolution of the Indian Subcontinent*, *Bibliography of Indian Literature*, *Compendium of Plenary Talks*, *Post-IGC Publications*, coffee table book on Geotourism Hot spots of Indian Subcontinent and release of commemorative stamps etc.

Excursions are planned to cover the uniqueness and diversity offered by the subcontinent, and 50 trips along with trip coordinators and members have been identified. Brochures with maps, routes and details of field trips are under preparation. Other co-host countries are developing their field trips (Bangladesh - Myanmar - Nepal - Sri Lanka). The Geo-host Program will support 1,000 Registrations/Hospitality/Travel supports, the Youth Geo-host Program would support 121 Graduate students as full delegates, and the Youth Volunteer INSPIRE Program would have 500 volunteers at Graduate level. The 1st Circular of the 36th IGC would be released soon.

15.c. 38th IGC in 2028: Call for bids? (S. Finney)

This item will be discussed in the Closed Session.

16. Amendments of IUGS Statutes and Bylaws (S. Finney)

16.a. Article 16; other amendments

SF reported that in the minutes of the 4th Ordinary Session of the IUGS-IGC Council, there was a motion to amend Article 16 in the IUGS Statutes concerning the Affiliated Organizations. In the proposed amendments, it read “Affiliated status is maintained for the life of the joint project, or for a maximum of 5 years. If they are actively involved with IUGS related activities, organizations can apply for renewal of their affiliated status.”

It was explained that the rationale behind the proposed amendments was to push Affiliated Organizations to be actively involved in the IUGS activities and ensure closer relationships between IUGS and its Affiliated Organizations.

SF said that IUGS received very low response from the Affiliated Organizations in terms of the submission of annual reports. He would send a warning letter to all the Affiliated Organizations, stating that according to the above amendment they need to apply for reinstatement of the affiliation status with IUGS for another 5 years since all of them have exceeded more than five years of affiliation. Those organizations which did not respond or submit their annual reports would lose their affiliation status with IUGS.

17. Reports from IUGS Adhering Organizations

17.a. United Kingdom (N. Bilham)

Nic Bilham, Director of Policy and Communications of the Geological Society of London (GSL), reported that the Geological Society supported the work of geoscientists, inspired interest in the physical world, and connected science, profession and society. In 2018, the number of the GSL members exceeded 12,000 from 88 countries, 20% of whom were overseas members. The Society connected academia, industry and government.

He reported that the External Relations Committee of the Society oversaw the work on policy, communications, education, outreach, geoconservation, media, UK and international links (inc IUGS, IGCP, EFG, AGI, etc etc). The aims of the External Relations Committee were to raise public awareness and understanding of geoscience, and the professional activities of geoscientists, including the relevance of the science and profession in aiding policy and decision making concerning wealth creation, provision of resources, sustainability, environmental protection and conservation; to consider nominations for Honorary Fellowship; and to make recommendations to Council regarding these nominations.

The Society published *Geology for Society* in March 2014 and initiated themed years - Year of Mud for 2015, Year of Water for 2016, Year of Risk for 2017, Year of Resources for 2018 and Year of Carbon for 2019. The Society successfully launched 100 Great Geosites Mobile App and celebrated 50 years of plate tectonics in 2017.

The Society had been actively engaged in Resourcing Future Generations. The Bryan Lovell meeting 'Mining for the Future' was held on 23-24 November 2017 in conjunction with the IUGS RFG Initiative. With the Year of Resources in 2018, the Society would actively participate in the RFG2018 Conference to be held in Vancouver.

17.b. Geological Society Located in Taipei (Y. Liou)

Ya Hsuan Liou, Secretary General of the Geological Society located in Taipei, reported that the Society was founded on January 26th, 1957 and the number of members reached 2,182 in 2017. The Society had the following Committees, namely, International And Cross-Strait Affairs Committee, Member Committee, Information Committee, Organic Laws and Statutes Committee, Election and Voting Committee, Editorial Committee, Ti-Chih Editorial Committee, Medal Award Committee, Finance Committee, Academic Committee, and Technical Service Committee.

The Society was engaged in Geology Education Research, Geomorphology Research, Stratigraphy and Paleontology Research, Engineering Geology Research, High Pressure Science Research, Quaternary Research, and Structural Geology Research. The Society organized Annual Conferences of the Geological and Geophysical Societies in Taipei. It published a book entitled "the Geology of Taiwan" and "Western Pacific Earth Sciences (WPES)" journal. It undertook 9 Projects from the government in the fields of geohazards, hazardous waste disposal site investigation, and geological survey. The Society nominated awards, including Academia Achievement Award, Best Paper Award, Best Young Scientist Paper Award. It organized the 14th International Ichnofabric Workshop, International Conference of XRF Core Scanning 2017, Asian Orogeny and Continental Evolution: New Advances from Geologic, Geophysical and Geochemical Perspectives - An international conference in memory of Prof. Dr. Bor-Ming Jahn (1940-2016). It also sent delegates to participate in major international geoscience conferences, such as IGC, EGU, AGU etc.

17.c. India (H. Achyuthan)

H. Achyuthan, Foreign Secretary of the Geological Society of India, reported that the aims and objectives of the Society included the following: (1) To promote the cause of advance study and research in all branches of Geology connected with India. (2) To cooperate with the existing Academics, Societies and Institutions having similar objects for the advancement of Science in India and with such other associations when founded. (3) To promote the cause of geological research in India by the publication of a Journal. (4) To publish monographs, memoirs, transactions etc. dealing with special problems of Indian Geology. (5) To organise meetings and conferences for the discussion of subjects of geological interest and importance. (6) To represent internationally the scientific work of India in the field of geology. (7) To secure grants, funds and endowments and administer the same for the furtherance of geological study and research in India. (8) To undertake and execute all other acts which shall promote the aims and objectives of the Society. The benefits of the Society were made open to all, irrespective of caste, creed or religion. From the beginning the Society clearly laid the policy that it shall be a non-profit organisation. The Society has three classes of membership: (1) Fellows, (2) Honorary Fellows and (3) Corporate Members.

The Society events in 2017 included a Report on the Foundation Day 2017 Workshop - Strengthening State DMGs; a Report on the Earth Day 2017: Sustainable Earth, Report on the Inauguration of Western India Chapter of the Society at Pune, Monthly Scientific Lecture - “The Hutti Gold Mines: Current Status and Potentialities, Karnataka”, a Note on 97th Birth Anniversary of Late Dr.B.P.Radhakrishna, Efficacy of Artificial Recharge Structures for Sustainable, K.R.Karant Endowment Lecture by Dr.G.Sudharshan, Regional Director, CGWB on 29/12/14, 9 and 10 th International Earth Science Olympiad.

17.d. Morocco (A. Benlakhdim)

A. Benlakhdim, Director of the Geological Society of Morocco, introduced the work of the Society in French.

18. Reports from IUGS Affiliated Organizations

18.a. International Association for Promoting Geoethics (Silvia Peppoloni)

Silvia Peppoloni, Secretary General of International Association for Promoting Geoethics (IAPG), briefly introduced IAPG and reviewed the major achievements of IAPG.

1. Introduction of IAPG

IAPG, a scientific, non-governmental and non-political organization founded in 2012 at the 34th IGC, offers a multidisciplinary platform for widening the discussion and creating awareness about values and problems of ethics applied to the geosciences. Currently IAPG has more than 1800 members from 123 countries and 28 national sections and is composed of Executive Council, Board of Experts, Young Scientists Club and Task Group on responsible mining. IAPG promotes geoethics through international collaboration with associations, organizations and institutions. Silvia Peppoloni briefed the next congresses during 2018, including workshops and sessions participated by IAPG scientists. All the IAPG publications are peer-reviewed and two books were published during 2017.

2. Major achievements

One of the most important achievements of IAPG is the Cape Town Statement on Geoethics released during the 35th IGC, which is supported by 18 geoscience organizations including IUGS and has been translated into 35 languages. She also mentioned several important achievements during 2017, including a paleontological fraud and misconduct case in Peru, an open letter by IAPG-Peru to Peruvian population on disastrous floods in Peru, an IAPG campaign of sensitization of local communities during landslides and floods in Malawi and IAPG-Brazil managing the module on geoethics in the

training course on “Ocean Governance, Sciences and Geoethics”.

To reward scientists who have distinguished themselves in applying/favouring/assuring ethical approaches in the geosciences research and practice, the Geoethics Medal 2018 has been established. Detailed information could be found on the website: <http://www.geoethics.org/geoethics-medal>. Silvia Peppoloni also expressed gratitude to IUGS for its strong support for IAPG and briefed IAPG 2018 activities.

18.b. International Association of Mathematical Geosciences (Raimon Tolosana-Delgado)

Raimon Tolosana-Delgado, Executive Vice President of International Association for Mathematical Geosciences (IAMG), gave a brief introduction of Association, reviewed the chief accomplishment in 2017 and presented future plan.

IAMG was founded in 1968 at IGC in Prague. Its mission is to promote worldwide the advancement of mathematics, statistics and informatics in the geosciences. IAMG is committed to develop a diverse, inclusive scientific network addressing the global geo-related challenges of society. It owns a global network having 685 members from 55 countries worldwide.

Raimon Tolosana-Delgado introduced IAMG's relations with other scientific societies. IAMG is an affiliated member of IUGS, IUGG and ISI and has made scientific contributions to IGC and AGU meetings and economic contributions to CoDaWork2017. In order to nurture early career researchers, IAMG has established 8 fellowships for students and ECR. As for publications, IAMG has three publications including *Mathematical Geosciences*, *Natural Resources Research* and *Computers & Geosciences*.

Raimon Tolosana-Delgado introduced the awardees of the 2017 IAMG Distinguished Lecturer, 2018 IAMG Distinguished Lecturer and IAMG 2017 Matheron Lecturer. The IAMG 50th Anniversary Meeting 2018 will be held in Olomouc and Prague (Czech Republic) from 2-8 September 2018.

Raimon Tolosana-Delgado mentioned future Plan of IAMG, including celebration of the golden anniversary at the annual meeting in Olomouc and Prague, consolidation of the network presence, contribution to making geoEnv2018 and RFG a success and increase of the presence and recognition of the contribution of women within the Association.

18.c. Carpathian-Balkan Geological Association (Franz Neubauer)

Franz Neubauer, President of the Carpathian-Balkan Geological Association, gave a

brief introduction of CBGA and reported on the major achievements in 2017 and working plan for 2018. Franz Neubauer introduced the 16 member countries and political landscape of the CBGA.

The main agenda of CBGA is the International CBGA Congress (“Conventus Geologorum”) all four years, which is devoted to the exchange of scientific information on progress in fundamental and applied geosciences research dealing with the CBGA and adjacent regions. Some work is performed with some support with the European Union (EU), which is supporting some multi-national projects. However, ca. a third (6) of CBGA countries is not part of EU.

The official journals of CBGA include *Geologica Carpathica* and *Geologica Balcanica* with open access. In 2018, CBGA aims to increase its international visibility by publication of more special issues in high-ranked international journals; prepare two books dealing with state of the art “Geology of Southeast European mountain belts”; and develop a science plan on role of Tethys oceans in formation of SE European mountain belts, Orocline formation, geohazards, and natural resources, etc.

Franz Neubauer informed that the XXI International Congress would be held on September 10-13, 2018 at the University of Salzburg in Austria, with an expectation of 400-500 participants. Free registration and accommodation will be provided for 20 PhD students. The congress has set up 16 themes of sessions and interdisciplinary session and sessions not fitting to General Themes have been proposed as Special Sessions. CBGA encourages session conveners to edit Special Issues in international journals.

18.d. Arab Geologist Association (Sarmad Sh. Mahmood)

Sarmad Sh. Mahmood, Secretary General of Arab Geologists Association (AGA), briefly introduced the Association and reported on the Association’s main activities in 2017.

AGA is mainly devoted to geologic theme common the Arab countries, exchange of information and experience, communication with the geological authorities in the Arab world and cooperation with the International geological community. AGA consists of the associated bodies from the Arab countries, higher council conference, Executive Office, General Secretariat and technical committees. IUGS provides expertise for the purpose of raising the scientific level of geological survey and drilling water wells and dams, reservoirs and Arab universities bodies.

AGA participated in a series of international meetings, including the 71ST IUGS EC Meeting, Symposium of Motor Oils and Recycling, and 16th Iraqi Geological Conference, etc. AGA also held a meeting with the Deputy Secretary General of the Islamic Party of Iraq.

18.e. Geology for Global Development (Nic Bilham)

SF reported that the international organization Geology for Global Development requests that the IUGS EC admit it as an affiliated organizations. Then SF invited Nic Bilham from the Geological Society of London to introduce GfGD.

Nic Bilham informed that GfGD is a registered charity, based in the United Kingdom and operating internationally. The purpose of GfGD is to champion the role of geology in sustainable development, mobilising and reshaping the geology community to help deliver the UN Sustainable Development Goals (2015–2030). GfGD has four strategic objectives including: promoting the value of geology in supporting sustainable development, equipping geologists to engage positively in sustainable development, enhancing the application of geology to international development, and exercising international leadership on matters relating to geology and sustainable development.

GfGD intends to become an affiliated organization of the IUGS, build partnerships with other appropriate geoscience organizations, develop and lead a global coalition of geology-oriented organizations committed to supporting the UN Sustainable Development Goals, complete a review of how best to expand the inspiration and education components of our work to multiple overseas contexts and implement the recommendations of this review to start expanding our work, and be an active contributor to major international geology events and conferences and an ambassador for the geology community at major international development events and conferences.

RO added that some affiliated organizations were not active anymore. SF added that IUGS had not decided how to do the evaluation of IUGS affiliated organizations yet. The IUGS EC members will discuss the item in the closed session.

19. YES (Wang Meng)

Wang Meng, President of Young Earth Scientists (YES), gave a brief introduction of YES and reported on the major achievements in 2017, working plan for 2018, future perspective and budget for 2018.

YES Network is an international group of early career geoscientists from universities, government organizations and companies, with over 4500 members from 129 countries. It has been founded in 2008 during the International Year of Planet Earth with the vision of “Promoting the Geosciences for Society”. Until now, 49 National Chapters have been set up. By the end of 2015, YES had 5000 members from 129 countries and 49 National Committees and National Representatives. YES permanent Secretariat is now hosted in EuroGeosurveys.

Wang Meng reviewed the major achievements of YES as follows: the 4th YES Congress with the theme of “Mitigating Geohazard and Resources for future generation” was held on August 27-30, 2017 hosted by Geological Survey of Iran and YES National Chapter of Iran with support from IUGS, UNESCO and related organizations; two new Regional chapters were set up as Germany and Poland; a Young Scientists Course jointly organized at IAMG2017 at Perth, Australia; Joint Training Course with China Association for Science and Technology and Joint Training Course of Mine Research in African Region with China Geological Survey; a series of agreements have been signed including the Agreement with Geological Survey of Iran, Agreement with RFG 2018 for joint sessions, MOU with GFZ, MOU with EAGE and Agreement with India for events in the 36th IGC.

Wang Meng presented working plan for 2018 as follows: YES would file two applications to Horizon 2020; YES would set up a team on applied geochemistry and a task group on geopark; YES would seek fund to support 5 projects; YES would look for new editorial team for the YES Bulletin; a series of YES-related activities, including a small celebration for the 10th anniversary of YES Network would be held during the RFG2018; the 5th YES Congress would be hosted in Berlin, Germany in September 2019.

Total Budget for 2018 was 52,200 USD, which would be mainly used for supporting the young scientists during RFG2018 and events for the 10th Anniversary of YES Network, publishing YES Bulletin; supporting national chapter scientific events, seed projects for young scientist, YES regional events, YES EC and cost of YES Office in Brussels.

20. Next EC Meeting (S. Finney)

The next EC meeting may be held in Bogotá, Colombia and hosted by the Geological Survey of Colombia. Convening an IUGS EC meeting in Colombia could help with the reactivation of the inactive IUGS member countries in South America.

CQ added that there were two other alternative options of holding the IUGS EC meeting, South Korea and China, for the consideration of the EC.

21. Other Business (S. Finney)

No other business was discussed.

22. Closing of the Open Session (S. Finney)

CQ and SF expressed their appreciation to all the delegates for their participation in

and contributions to the IUGS EC meeting and sincerely thanked the valuable suggestions from the IUGS groups for the future development.

Attachment:

**INTERNATIONAL UNION OF GEOLOGICAL SCIENCES
72ND EXECUTIVE COMMITTEE MEETING
OPEN SESSION**

January 23rd-24th, 2018

ACTION LIST

Item	Description	Status
EC72Act_01	The Secretariat to mail the hard copies of Episodes in 2018.	
EC72Act_02	AB to launch a social media survey among the IUGS community.	

EC72Act_03	WC to identify the fourth candidate for FC member. The slate of candidates to be ratified by EC members through an electronic voting.	Done
EC72Act_04	EC members to discuss and modify the Terms of Reference of ICG at the Closed Session of the 72 nd EC Meeting.	
EC72Act_05	SF to write a letter to all the Affiliated Organizations, stating that in accordance with the amendment to Article 16 in the IUGS Statutes they need to apply for reinstatement of the affiliation status with IUGS for another five years.	
EC72Act_06	EC members to prepare short statements of feedback on the annual reports submitted by the Affiliated Organizations and SF to respond to each Affiliated Organization which has submitted its annual report.	
EC72Act_07	SF to write to Director of the Geological Survey of Colombia about holding the next IUGS EC meeting in Bogotá, Colombia.	Done