

Minutes

of the

Annual SNC-IUGG Committee Meeting
30 November 2018, 09:00 – 10:30
Department of Earth Sciences, ETHZ, Zürich

Committee members present

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| Dr Charles Fierz, Secretary and treasurer, IACS | |
| IACS | Dr Andreas Bauder |
| IAG | Mr Adrian Wiget |
| IAPSEI | Dr John Clinton |
| IAVCEI | Prof. Dr Peter Ulmer |

Committee members absent with regrets

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| Prof. Dr Jan Seibert, President, IAHS | |
| IAGA | Dr Alexey Kuvshinov |
| IPA | Dr Marcia Phillips |

Committee members absent

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| IAMAS | Dr Christopher Hoyle |
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Secretary C. Fierz opens the meeting and welcomes the committee members present and notes that the quorum required by the bylaws is attained. Prof. J. Seibert and Dr M. Phillips excused themselves for pro-fessional reasons, Prof. Dr Alexey Kuvshinov for health reasons.

1 Approval of the agenda

No additions are requested. C. Fierz proposes to switch items 4 & 5, and to move item 9 just after 5. This modified agenda is accepted by the members present.

2 Approval of the minutes of the 2017 meeting in Davos

The minutes are accepted with a few remarks by Mr Wiget and with thanks to SNC-IUGG secretary C. Fierz.

3 Treasurer's report

The treasurer tables his report for 2017. The report displays an income of **CHF 7 000.00** and an expenditure of **CHF 10 411.40** of which **CHF 2 115.00** is the surplus returned to SCNAT for 2016. The bank account balance on 31 December 2017 amounted to **CHF 123.40**.

The report is accepted by the members present.

NC-IUGG overspent its budget by CHF 295.80. This corresponds to the bill for our lunch in Davos, which is included in the 2018 budget, and not budgeted bank account fees. Accordingly, the surplus 2016 returned to SCNAT was short by ~ CHF 300.-.

4 Budgets 2018 and 2019

2018

IAG, IASPEI, and IPA will request their allotted funds for travel; IAGA and IAHS do not. The members present decided that SCNAT should be asked whether this money could be transferred to 2019 (see below).

2019

Our requests for Union Lecture and travel assistance were accepted with a substantial cut on the second item (CHF 7 000.- instead of CHF 10 500.-). Secretary C. Fierz notes that the PF Geosciences had to make similar substantial cuts throughout the budget of the platform. Nevertheless, he mentioned at the Plenary of the PF Geosciences that SNC-IUGG may need additional funding to adequately support the Geneva team bidding to host the 2023 IUGG General Assembly in Montréal next year. The 2019 budget is pending acceptance by the Executive Council of SCNAT.

5 Activities 2019

5.1 IUGG General Assembly 2019 in Montreal

- Swiss Delegate to Council on 9, 12, and 16 July 2019:
Our President J. Seibert will not be able to attend the IUGG GA for family reasons. The members present agree that a Swiss delegate needs to imperatively attend the 16 July Council meeting (voting) and at least one of the two remaining. The members present agree that the IAG Delegate (TBN) will attend at least one of the two meetings taking place in the first week, while the IAPSEI Delegate (TBN) will attend the voting meeting in the second week.
Once the names of all Swiss Delegates are known, Secretary C. Fierz will request SCNAT to send Letters of Accreditation to the IUGG Secretary General.
- The committee members attending Montréal are asked to support the team preparing the Swiss bid to host IUGG GA 2023 in Geneva.
- C. Fierz proposes to compile a quadrennial report on the Swiss activities related to IUGG.
J. Clinton notes that a template would be helpful. Deadline End of February 2019.
- There is no IAPSO correspondent in the committee. C. Fierz will contact the Commission for Oceanography and Limnology (COL) to ask whether a IAPSO correspondent / delegate could be nominated.

5.2 Others

- None announced.

6 Union Lecture

2018

The Union Lecturer 2018 is Bernard Marty, ENS, Université de Lorraine, Nancy, France, sponsored as usual by both NC-IUGG and NC-IUGS.

The title of his keynote is, "On the origin and early evolution of the atmosphere".

2019

The XXVII IUGG General Assembly in Montréal will mark the centenary of IUGG in 2019. The members present propose that SNC-IUGG contacts the organisers of the SGM 2019 in Fribourg to discuss about the Union lecturer in advance. Suggestions for possible and necessarily good speakers are requested by 21 December 2018. The lecture should fit the theme of SGM 2019.

7 Communications

7.1 Confirmation of the Swiss Titular Member to the European Seismological Commission

- NC-IUGG confirmed Prof. Dr Donath Fäh as Swiss Titular Member to the European Seismological Commission for the period 2018-2022.

7.2 IUGG Early Career Award

- President J. Seibert and Secretary C. Fierz nominated Dr Nander Wever, a young cryospheric scientist, to this award. IUGG recently announced the 10 recipients selected from 22 nominations. Unfortunately Dr Wever is not among the awardees.

7.3 Nominations to IUGG Bureau and Finance Committee

- The members present decide that there is currently no need to nominate Swiss candidates to these positions.

7.4 Others

- Secretary C. Fierz thanks all members, present and absent, for their participation whenever asked by e-mail to do so, in particular in IUGG matters. It is important to show we are an active national committee, not only in view of the Geneva 2023 bid.

8 Reports by the members

IACS (by Charles Fierz and Andreas Bauder)

- o Conference POLAR 2018 in Davos attended by 2000+ participants. IACS held its 2018 Bureau meeting during the event.
- o SLF is working on a "European Snow Booklet" within the COST Action HarmoSnow
- o Matthias Huss is new President of the Swiss Society for Snow Ice and Permafrost (SIP); Nadine Salzmann and Theo Jenk were elected as new board members; Mareike Habermann presented the Swiss version of «Girls on Ice» and Andreas Linsbauer the new cryosphere portal on the SCNAT website.
- o The Glacier Monitoring in Switzerland (GLAMOS) is now in its third year and operational. It is run at VAW/ETHZ by M. Huss and A. Bauder.
- o Avalanches are a UNESCO "immatérielles Gut"
- o UNESCO and WMO support the idea of an International Year of Snow and Ice in 202?

IAG (by Adrian Wiget)

- Als Vorschläge für die Wahl der IAG Officers der Periode 2019-2023 hat die Schweizerische Geodätische Kommission (SGK) folgende Personen nominiert:
 - Dr. Urs Marti, swisstopo als Secretary General der IAG
 - Prof. Dr. Adrian Jäggi, Astronomisches Institut der Universität Bern (AIUB) als President of Commission 2 (Gravity)
 - Auf Anfrage des Generalsekretärs und des Präsidenten der IAG hat die SGK eine Würdigung von Prof. em. Dr. Gerhard Beutler (AIUB) im Hinblick darauf, dass Herrn Beutler evtl. die IUGG Gold Medal verliehen werden soll. Der Entscheid darüber ist aber noch ausstehend.
 - An der Herbstsitzung der SGK wurde die Nachfolge von Adrian Wiget als IAG National Delegate der Schweiz und als Vertreter der Geodäsie im SNC-IUGG besprochen. Dr. Elmar Brockmann, swisstopo, ist bereit, diese Aufgabe zu übernehmen. Wegen diversen Abwesenheiten hat die SGK die Wahl aber noch nicht vorgenommen. Bis am 15. Dezember können sich noch andere Interessenten melden. Es sieht allerdings so aus, dass Elmar Brockmann der einzige Kandidat ist und auf dem Korrespondenzweg bestätigt werden wird.

See also Annex 1.

IAGA

- Conferences, which scientists from ETH Zurich attended:
 - AGU Fall Meeting, New Orleans, USA, December, 2017
 - EGU General Assembly, Vienna, Austria, April, 2018
 - EM Induction Workshop, Helsingor, Denmark, August, 2018
 - Swarm Data Quality Workshop, Frascati, Italy, October, 2018
- Activity on geomagnetic observatories supported by ETH Zurich:
Training in Zurich, Niemegk (Germany) and Vienna (Austria) of Maldivian researcher who is responsible for running observatory at Gan, Maldives, Indian Ocean
- Magnetotelluric (MT) studies led by scientists from ETH Zurich:
Regional MT studies in Mongolia (August 2018; geodynamic context)
Local MT studies in Mongolia (October 2018; geothermal context)
- ESA activities led by scientists from ETH Zurich:
New ESA/DISC/ETH contract "Studying mantle electrical conductivity with Swarm satellite data" (2018-2020)
- Activities led by scientists from ETH Zurich on analysis of magnetic data from NASA Martian Insight mission:
New ETH grant "Probing Martian mantle with satellite and ground-based magnetic field data" (2019-2022)
- Preparation and submission of ERC Advanced Grant:
"Global Electromagnetic Tomography of the Upper Mantle (GETUP)" (PI: Alexey Kuvshinov)

IAHS

No report.

IAMAS

No report.

IAPSO

No correspondent.

IASPEI

See Annex 2.

IAVCEI

No report.

IPA (by Marcia Phillips)

- The 5th EUCOP was held in Chamonix in June 2018. MP held a keynote lecture on the role of permafrost in the 2017 Cengalo rock avalanche.
- Jeannette Nötzli has developed a user-friendly data platform for PERMOS. Data (Borehole temperatures, ground surface temperatures, ice contents, kinematics) can be downloaded or represented in different forms, see <http://newshinypermos.geo.uzh.ch/app/DataBrowser/>
- Robert Kenner et al. have developed a new permafrost map of Switzerland, distinguishing between ice-poor thermally induced permafrost and ice-rich permafrost formed by mass wasting (accumulation of avalanche snow and rock debris). Validated with data from the Alps. Kenner et al. (submitted to The Cryosphere - should appear in TCD very soon). Map can be adapted to climate scenarios and applied to other mountain regions worldwide. Also useful for mountain infrastructure construction projects (i.e. avoiding ice-rich permafrost).
- Jeannette Nötzli et al. are planning to publish best-practices for measurements in mountain permafrost in 2019 (still in prep!). Recent enquiries on drilling techniques from Alaska (no mountain permafrost measurements) and Chile.
- Summer 2018 heat wave induced near-surface rock slope instability (i.e. active layer failure) in the Alps, with rock fall activity peaking in September. Ice was often present in the detachment zones and in some cases ice samples were obtained for dating.

9 Website

In preparation to IUGG Secretary C. Fierz and M. Phillips will give our web face an uplift, showing highlights of our activities, the names of both correspondents and Delegates as well as advertising the Geneva bid.

10 Varia

This was Adrian Wiget's last SNC-IUGG meeting. Adrian retired from work this year. Adrian joined the committee in 2008 and has always been a very active and supporting member and he will make sure that a new IAG correspondent is found before the end of 2018. The members present thank Adrian for his work and wish him all the best for the future.

11 Next Meeting

The SGM 2019 will take place 22-23 November 2019 in Fribourg. We will most probably meet on 22 November 2019 in Zurich prior to the Plenaries, place and time to be announced.

2019-11-20 / C. Fierz

Annual Report 2018 of the Swiss Geodetic Commission (SGC) to the Swiss National Committee for the IUGG (SNC-IUGG)

1. Swiss Geodetic Commission meetings

The International Association of Geodesy (IAG) is represented in Switzerland by the Swiss Geodetic Commission (SGC), a commission of the “Platform Geosciences” of the Swiss Academy of Sciences SCNAT. Members of SGC are scientists from universities, governmental services and private companies working in the field of Geodesy. The commission met twice for its biannual spring and autumn meetings.

19. 04. 2018: 199th meeting of the SGC at the Observatory **Zimmerwald** of the Astronomical Institute of the University of Bern (AIUB). Visit of the newly enlarged observatory. Presentations and visit of the facilities, including the SLR laboratory. Ordinary spring meeting of the commission.
01. 11. 2018: 200rd meeting of the SGC at the **Federal Office of Topography swisstopo**, in Wabern. Presentations and reports of all member organizations on their activities and projects during 2018.

The minutes of the two annual meetings of the SGC, including summaries of the activity-reports, are published in the “Procès-Verbaux”: <http://www.sgc.ethz.ch/publications#verbaux>.

More details on the projects and research activities of the member organizations are published in their annual reports. The list of the members of the SGC can be found in: <http://www.sgc.ethz.ch/members.html>

2. General conferences and meetings

In this report, the attended conferences and meetings related to the IAG are mentioned. Apart from those, many members of the SGC participated and contributed to conferences, which are not directly sponsored by IAG. However, these contacts help as well to represent the geodetic community in different disciplines of geosciences and navigation. The larger meetings were:

- **European Geosciences Union EGU**, General Assembly 08. - 13. 04. 2018 in Vienna, Austria; 655 participants from Switzerland including special sessions on Geodesy and Geodynamics as well as GGOS-meetings: <https://www.egu2018.eu/>
- **International Federation of Surveyors FIG**: General Assembly 2018: 06. - 11. 05. 2018 in Istanbul, Turkey; <https://www.fig.net/fig2018/>
- **ENC 2018 European Navigation Conference**: 14. - 17. 05. 2018 in Gothenburg, Sweden; <https://enc2018.eu/>
- **IX Hotine-Marussi Symposium on Mathematical Geodesy**: 18. - 22. 06. 2018 in Rome, Italy <https://sites.google.com/uniroma1.it/hotinemarussi2018/>
- **IAG Commission 1 Symposium Reference Frames for Applications in Geosciences (REFAG2018)**:

15. - 21. 07. 2018 in Pasadena, California, USA

<https://www.cospar-assembly.org/admin/sessioninfo.php?session=683>

**- United Nations Committee of Experts on Global Geospatial Information Management
UN-GGIM 8th session**

01. - 03. 08. 2018 UN Headquarters, New York, USA;

<http://ggim.un.org/meetings/GGIM-committee/8th-Session/>

- ION- GNSS+ 2018: 24. - 28. 09. 2018 in Miami, Florida, USA;

<https://www.ion.org/gnss/program.cfm>

- International GNSS Service: IGS Workshop 2018 “Multi-GNSS through Global Collaboration”, 29.10. - 02.11.2018 in Wuhan, China;

<http://igsworkshop2018.gnsswhu.cn/>

3. EUREF 2018 Symposium; 30. 05. - 01. 06. 2018 in Amsterdam, NL

EUREF is the IAG Reference Frame Subcommittee for Europe. The SGC was represented at the EUREF 2018 Symposium by E. Brockmann (swisstopo) and by R. Dach (AIUB), together with other Swiss participants.

- Opening Session
- Session 0: GNSS: Constellations
- Session 1: ETRS89, EVRS
- Session 2: Networks: EPN, UELN, Densification
- Session 3: Techniques: GNSS, Levelling, Combination
- Session 4: Applications: Earth Sciences, Geo-Information
- Session 5: National Reports
- Closing Session and Poster Presentations

For more information, including the resolutions, please visit the website:

→ http://www.euref.eu/euref_symposia_meetings.html

4. EUREF Technical Working Group / Governing Board Meetings:

The Technical Working Group (TWG) of EUREF, since 2017 called Governing Board, is responsible, in general, for the control of EUREF activities and policy. Representative for Switzerland is E. Brockmann (swisstopo) and R. Dach (AIUB). In 2018, the TWG/GB met twice:

- Padova (Italy), 27.-28.02.2018
- Amsterdam (Netherlands), 28.29.05.2018

5. 1st Workshop on the International Geodynamics and Earth Tide Service (IGETS); 18. - 20. 06. 2018, Potsdam (Germany)

<https://isdg.gfz-potsdam.de/fileadmin/isdg/docs/IGETS-2018-programme-20180615.pdf>

6. International Symposium on Gravity, Geoid and Height Systems 2 “Gravity Field of the Earth”; IAG Symposium; 17. - 21. 09. 2018 in Copenhagen, Denmark

The symposium was organised by IAG Commission 2 (Gravity Field) and the International Gravity Field Service (IGFS). It was structured around 7 science sessions:

- 1) Current and future satellite gravity missions
- 2) Global gravity field modelling

- 3) Local/regional gravity field modelling
- 4) Absolute, Relative and Airborne Gravity - observations and methods
- 5) Height systems and vertical datum unification
- 6) Satellite altimetry and applications
- 7) Mass transport and climate-relevant processes

The SGC was represented by Dr. U. Marti (swisstopo).

For more information, please visit the website:

→ <http://www.space.dtu.dk/english/gghs2018>

7. GGOS Days 2018: 02. - 04. 10. 2018 in Tsukuba, Japan

The GGOS Days are the annual meeting of most of the Components of the Global Geodetic Observing System (GGOS): GGOS Consortium (large steering committee of GGOS), GGOS Coordinating Board (decision making body of GGOS), GGOS Bureau of Networks and Observations, GGOS Bureau of Products and Standards, GGOS Focus Areas 1, 2, 3 and 4 as well as the GGOS Science Panel. The meetings are focused on strategic discussions rather than on formal reporting.

For more information, please visit the website: www.ggos.org

8. AHORN 2018 – Der Alpenraum und seine Herausforderungen im Bereich Orientierung, Navigation und Informationsaustausch; 22. - 23. 11. 2018 in Veysonnaz, Schweiz

Das Schweizerische Institut für Navigation (ION-CH) organisierte gemeinsam mit seinen Partnervereinen aus Österreich, dem Österreichischen Verein für Navigation (ÖVN) und aus Deutschland, der Deutschen Gesellschaft für Ortung und Navigation (DGON) am 22./23. November 2018 in Veysonnaz die Dreiländertagung AHORN 2018 - Der Alpenraum und seine Herausforderungen im Bereich Orientierung, Navigation und Informationsaustausch.

Schwerpunkte der Tagung sind Technologien für Ortung, Navigation und Kommunikation und die sich daraus ergebenden Anwendungen im alpinen Gelände. Zweck ist dabei die Zusammenführung von Forschern, Entwicklern, Bedarfsträgern und Nutzern zum Erfahrungsaustausch über die Anwendung vorhandener sowie Forderungen an künftige Technologien und deren Einsatzmöglichkeiten, um spezifische Probleme im alpinen Raum besser lösen zu können. Ziel ist die wissenschaftliche Behandlung des Themenbereichs sowie die Vorstellung praktischer Anwendungsbereiche und Referenzprojekte.

Die in der SGK vertretenen Institutionen waren u.a. vertreten durch Dr. U. Wild (swisstopo, Präsident der Tagung), Prof. A. Geiger (ETHZ), Prof. B. Merminod und Dr. J. Skaloud (EPFL).

For more information, please visit the website:

→ <http://www.ion-ch.ch/organisation.php> or <http://www.ion-ch.ch>

9. Swiss Geoscience Meeting 2018 an der Universität Bern; 30.11. - 01.12. 2018

The theme of the 16th Swiss Geoscience Meeting was "A Habitable Planet" (→ <https://geoscience-meeting.ch/sgm2018/>). The Swiss Geodetic Commission was supporting and co-organizing two sessions at the SGM 2018:

Session 20: Remote Sensing of the Spheres

Convenors: Stefan Wunderle, Mathias Kneubühler, Dominik Brunner, Alain Geiger.

Session 21: Geoscience and Geoinformation – From data acquisition to modelling and visualisation

Convenors: Nils Oesterling, Adrian Wiget, Massimiliano Cannata, Michael Sinreich.

10. Publications

The minutes of the meetings of the SGC are published in the "Procès-Verbaux" (<http://www.sgc.ethz.ch/publications#verbaux>).

The members of the Swiss Geodetic Commission are publishing scientific articles and reports as well as general publications related to their working field on a regular basis. The following reports were printed in 2018 in the SGC-series called "**Geodätisch-geophysikalische Arbeiten in der Schweiz**":

(<http://www.sgc.ethz.ch/publications.html#geodgeophys>)

Nr. 101: Mehran Khaghani: Vehicle Dynamic Model Based Navigation for Small UAVs

Further publications by EPFL Laboratoire de Topométrie:

- PE&RS Journal: – Redaction of a special Issue: "Best of 2017 ISPRS Hannover Workshop" (including EuroCOW – organized by SGK members)
- VDM-based autonomous navigation of a UAV under operational conditions, M. Khaghani; J. Skaloud, Robotics and Autonomous Systems was honored by the ENAC Doctoral School Award attributed to its 1st author.
- Journals : <http://topo.epfl.ch/publication-journal-article>
- Main conference: <http://topo.epfl.ch/publication-conference-papers>
- Book chapter: <http://topo.epfl.ch/publication-book-chapter>

11. Miscellaneous

Awards: ISPRS Helava Award – receptionist D.A. Cucci, M. Rehak and J. Skaloud (EPFL-TOPO) for their publication "Bundle adjustment with raw inertial observations in UAV applications," J ISPRS, August 2017. For details see <http://www.isprs.org/society/awards/helava/2017.aspx>

Members of SGC are coordinating the International Combination Service for Time-variable Gravity Fields (COST-G), the newly established Product Center of IAG's International Gravity Field Service (IGFS) for time-variable gravity fields. COST-G is the follow-up activity of the Horizon 2020 EU Framework Programme "European Gravity Service for Improved Emergency Management (EGSIEM)", which was coordinated 2015-2017 by members of SGC. → <http://www.egsiem.eu/>.

Members of SGC were involved in the final phase of the Horizon 2020 **EU Project mapKITE** that developed new mapping concepts by terrestrial-aerial tandem. → <http://www.mapkite.com>

Members of SGC are actively involved in the following COST actions:

- **ES1206 GNSS4SWEC** - Advanced Global Navigation Satellite Systems tropospheric products for monitoring severe weather events and climate. E. Brockmann (swisstopo) and A. Geiger (ETHZ) are members. The final report has been published.
→ <http://gnss4swec.knmi.nl/>

14.11.2018, A. Wiget, Member of the SNC-IUGG, representing IAG and National Correspondent and Delegate to IAG

2018 Annual Report – SNC-IASPEI

John Clinton, Swiss Seismological Service (SED), ETH Zurich
Swiss Correspondent for IASPEI

Activities 2018

- **ESC Assembly, Malta (Sept):** Around 20 Seismologists from Swiss Institutions participated in this meeting, organizing multiple sessions and contributing to over 30 presentations
- **Carlo Cauzzi (SED)** elected to be Secretary General of ORFEUS
- **ETHZ leadership in EU project EPOS:** The European Plate Observing System (EPOS) aims to build a sustainable base for European Research Infrastructures in Earth Science, and will develop a novel IT framework to coordinate multidisciplinary access to data and derived products. A new ~Euro18m 4 year Implementation Phase began in 2015. ETH coordinates Seismology.
- **ETHZ develops Seismic Service for Mars InSight Mission** (landing Nov 2018)
- **2019 IUGG meeting in Montreal:** strong participation by Swiss Scientists planned
- **Manage ~200 permanent stations in CH**
- **Support networks in Central America, coordinate temporary network across Alps (AlpArray - ~300 temporary stations from 2016-2018), Iceland**

Key Swiss involvement in IASPEI

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| Dr. John Clinton, SED, ETHZ | <i>SNC IASPEI Correspondent; Chair FDSN WG: Data Formats</i> |
| Dr. Florian Haslinger, SED, ETHZ | <i>President EMSC, EPOS WP 8 leader</i> |
| Dr. Carlo Cauzzi, SED, ETHZ | <i>Secretary General, ORFEUS</i> |
| Prof Stefan Wiemer, SED, ETHZ | <i>Swiss Representative at ISC</i> |
| Prof Donat Faeh, SED, ETHZ | <i>Swiss Titular Member for ESC</i> |
| Prof. Dominco Giardini, SEG, ETHZ | <i>Member, IASPEI Executive Committee; Past President.</i> |