**JOINT SYMPOSIA (v4.0 – April 8, 2018) – 65 Joint Symposia**

Boldface names indicate lead convener

COMMENTS – INSTRUCTIONS: PLEASE READ CAREFULLY

As per our meeting in Vienna, v4.0 is now clean and includes all input I have received so far OR at least I have included input that I could decipher and enter into appropriate cells.

Based on our Vienna meeting, below please find the action items.

1. PLEASE DO NOT EDIT ON-LINE. Download the file to your computer and track all changes. Then send me your input via email.
2. The highlighted text shows outstanding items – please enter appropriate information
3. Please check all information in this version, particularly the convener names, affiliations and emails.
4. I have removed the column with the “duration” of the symposia. This is not needed any longer.
5. There are still outstanding suggestions in the “comments” column. Please respond to these items and if resolved or not relevant any longer please delete them, so I know which items still remain outstanding. Please use track changes.
6. Abbreviations – Please spell them out as not all of them are known to everyone
7. Conveners: This is still an outstanding item: Please do the following:
   1. Please avoid entering convener names in symposia that are not led by your Association. Consult with the SG of the lead Association if you have any suggestions to make.
   2. Names of conveners should be presented by first name (given name) and then last name (surname). No need for capitalization of the last name
   3. Names of the lead conveners should be in **bold face**.
   4. Include the country of origin of the conveners. No need to add details on their affiliation, such as organization, university, agency, etc. See next comment
   5. Add only the IUGG Association affiliation of all conveners. See examples
   6. We need the e-mails of all conveners.
   7. Lead conveners must be listed first and should be affiliated with the lead Association of the symposium
   8. Once the lead conveners are identified and confirmed, I will contact them directly for symposia descriptions and/or edits to existing symposia descriptions
8. Symposia Descriptions: Symposia descriptions should not exceed 250 words. If you still have descriptions of symposia please enter them now.
9. Cross listing of symposia: Please enter cross listings, where applicable, to alert cross-communication among lead conveners.
10. I have uploaded the revised version of the deadlines n the drop box. Please check it out and plan accordingly your tasks. If you find inconsistencies please let me know.

**IAGA - A**

| CODE | Title | Conveners | Associations | Description | Comments |
| --- | --- | --- | --- | --- | --- |
| JA1 | Geophysical constraints on the Earth's core and its relation to the mantle | * IAGA: Jon Aurnou, (USA) [aurnou@ucla.edu](mailto:aurnou@ucla.edu) * Mathieu Dumberry * Catherine Johnson * Sabine Stanley | IAGA  IASPEI  U05 |  |  |
| JA2 | Geophysical data assimilation | * Alex Fournier??????????????? * IAGA: Sabrina Sanchez (France)   [ssanchez@ipgp.fr](mailto:ssanchez@ipgp.fr)   * IAHS: Salvatore Grimaldi (Italy) [salvatore.grimaldi@unitus.it](mailto:salvatore.grimaldi@unitus.it) * IAG: P. Novak (Czech Republic) | IAGA plus all Associations  U03 | This session aims at promoting a constructive dialogue between the different geophysical communities with a shared interest in the development of innovative strategies in data assimilation. We therefore particularly encourage the participation of contributions connected to emerging research fields of geophysical data assimilation, as well as the development of libraries, testbeds and computationally efficient data assimilation schemes. | See Note JA2 |
| JA3 | Geophysical records of tectonic and geodynamic processes | * IAGA: **Leonardo Sagnotti** (Italy) [leonardo.sagnotti@ingv.it](mailto:leonardo.sagnotti@ingv.it) * IASPEI : Marie Bocher [ferpoble2@gmail.com](mailto:ferpoble2@gmail.com) * IAGA, IAMAS : Matthias Morzfeld * IAG: H. Ozener (Turkey) * Fernando Poblete ???? | IAGA  IASPEI  IAVCEI  IAG | This session aims to bring together a wide range of investigations related to paleomagnetism, magnetic anisotropy, gravimetry, seismic, volcanologic and other geophysical studies intended to unveil tectonic and geodynamic processes at different scales and their links to Earth Dynamics. Thus presentations may include: ???? | See Note JA3  Convener Sagnotti to be confirmed |
| JA4 | Global electrodynamics and energetics of atmospheric regions from ground to space | * IAGA: **E. Williams** (USA) [earlew@ll.mit.edu](mailto:earlew@ll.mit.edu) * DIV II-A: M. Fullekrug (UK) [eesmf@bath.ac.uk](mailto:eesmf@bath.ac.uk) * ICMA: Irina Mironova [irini.mironova@gmail.com](mailto:irini.mironova@gmail.com) * IAMAS: C. Price (Israel) [cprice@flash.tau.ac.il](mailto:cprice@flash.tau.ac.il) * IAMAS: Eugene Rozanov (Switzerland) [eugene.rozanov@pmodwrc.ch](mailto:eugene.rozanov@pmodwrc.ch) | IAGA  IAMAS | The session solicits contributions which may advance our knowledge in all areas related to ionospheric potential, electrical currents, TLE, lightning physics, energetic radiation, energetic particles, and their impact on the Earth's atmosphere, ionosphere and the magnetosphere. Interdisciplinary studies which emphasize the electrodynamic connection between atmospheric layers, meteorological effects of GEC and possible impact to the climate change are particularly welcome. | See note JA4 |
| JA5 | Solar Influence on the Atmosphere | * IAGA: **Christoph Jacobi** (Germany) [jacobi@uni-leipzig.de](mailto:jacobi@uni-leipzig.de) * IAGA: Katja Matthes, (Germany) [kmatthes@geomar.de](mailto:kmatthes@geomar.de) * IAGA: Nicholas Pedatella (USA) [nickp@ucar.edu](mailto:nickp@ucar.edu) * Peter Pilewskie (USA)   [peter.pilewskie@lasp.colorado.edu](mailto:peter.pilewskie@lasp.colorado.edu)   * Joanna Haigh (UK)   [j.haigh@imperial.ac.uk](mailto:j.haigh@imperial.ac.uk) | IAGA  IAMAS | Solar influence on climate keeps attracting much interest presently. This includes in particular the role of the Sun both in the past climate as in future climate variability as an important aspect. State-of the art climate models include a well resolved stratosphere and partly mesosphere. This allows the prediction of global climate and its changes taking into account expected solar related variability at short to long time scales. | See note JA5  It would be more appropriate to title this "Solar Influence on the Atmosphere" and not get into climate effects. (IAMAS/M. MacCracken) |
| JA6 | Space Weather Throughout the Solar System: Bringing Data and Models Together | * IAGA: **Sarah Gibson** (USA) [sgibson@ucar.edu](mailto:sgibson@ucar.edu) * IAGA: Enrico Camporeale (Netherlands) [e.camporeale@cwi.nl](mailto:e.camporeale@cwi.nl) * Kyung-Suk Cho, * Giuseppe Consolini, * Christina Plainaki, * D. Hassler, * Earle Williams * IAG: K. Börger (Germany) | IAGA  IAMAS  IAG | We encourage contributions pertaining to recent progress in the effective incorporation of data into space weather modeling and prediction at any point along the chain from sun to planets. Moreover, we welcome approaches that are less traditional in the space weather community but possess potential for significant progress in forecasting and understanding space weather, and that draw upon "lessons learned" or "best practices" from applications to non-space-weather problems. | Reduce/revise list of conveners and add emails |
| JA7 | Geoscience data licensing, production, publication, and citation | * IAGA: M. Nosé (Japan), [nose@kugi.kyoto-u.ac.jp](mailto:nose@kugi.kyoto-u.ac.jp) * IAGA: S. Flower (UK) [s.flower@bgs.ac.uk](mailto:s.flower@bgs.ac.uk) * IAMAS: Yasuhiro Murayama (Japan) [murayama@nict.go.jp](mailto:murayama@nict.go.jp%20) * IASPEI: Helle Pedersen (France) [helle.pedersen@univ-grenoble-alpes.fr](mailto:helle.pedersen@univ-grenoble-alpes.fr) * Aude Chambodut (France) [aude.chambodut@unistra.fr](mailto:aude.chambodut@unistra.fr) * IAHS: Attilio Castellarin (Italy) [attilio.castellarin@unibo.it](mailto:attilio.castellarin@unibo.it) * IAG: S.M.A. Costa (Brazil) | All Associations  U04 | A number of national and international geoscience research infrastructures have been created in recent years, including EPOS (the European Plate Observing System), IUGONET (the Inter-university upper atmosphere global observation network), EarthCube (the ‘system of systems’ infrastructure for geosciences) and AuScope (the Autralian geoscience and geospatial infrastructure). At the same time the World Data System is evolving and certification of data repositories (ICSU-WDS, CoreTrustSeal) is becoming an important concern. Together these initiatives make it possible for users to easily access huge archives of disparate geoscience data and metadata in a secure and reliable manner, a task that was complex and time consuming before these initiatives were available.  Clear licensing of geoscience data gives users clarity over how they can use and share the data, protects the rights of data providers and promotes integrated research. Data publication and citation will benefit data suppliers by giving them proper credit, professional recognition and rewards for their works, in a similar manner to the way that publication of scientific results benefits scientific researchers. Licensing, publication and citation of data are becoming a requirement for contribution to geoscience infrastructures such as EPOS, IUGONET, EarthCube and AuScope. The system of licensing, producing, publishing, and citing of geoscience data is a structure for persistent intellectual content identification and management as well as for connection of users with content suppliers.  This session solicits contributions presenting actual practices and future plans of data licensing, producing, publication, and citation of scientific data, and possible related topics. |  |
| JA8 | Probing the Earth’s lithosphere and its dynamics using geophysical modeling | * IAGA: **F. Vervelidou** (Germany) [foteini.vervelidou@gfz-potsdam.de](mailto:foteini.vervelidou@gfz-potsdam.de) * IAGA: S. Kotsiaros (Denmark)   [skotsiaros@space.dtu.dk](mailto:skotsiaros@space.dtu.dk)   * IASPEI: Rob Govers * IASPEI: Javier Fullea   [fullea@cp.dias.ie](mailto:fullea@cp.dias.ie)   * IAG: R. Tenzer (China) | IAGA  IASPEI  IAG  IAVCEI |  | ILP to providse a convener and/or co-conevener  ILP should know about this symposium |
| JA9 | Joint inversion of different geophysical data sets | * IAGA: Alan Jones (Ireland) [alan.jones.geophysics@gmail.com](mailto:alan.jones.geophysics@gmail.com) * IAGA : Max Moorkamp (UK) [mm489@leicester.ac.uk](mailto:mm489@leicester.ac.uk) * IAGA: Martyn Unsworth (Canada) [unsworth@ualberta.ca](mailto:unsworth@ualberta.ca) * IASPEI: J. Carlos Afonso (Australia) [juan.afonso@mq.edu.au](mailto:juan.afonso@mq.edu.au) * IASPEI: Jan Dettmer | IAGA  IASPEI  IAVCEI  IAG  U03 | We solicit contributions focused on any related geophysical data set with the ultimate goal of enhancing our knowledge about the structure, composition and dynamics of the Earth’s crust and upper mantle. In this respect, we welcome contributions from studies focusing on data collecting and processing, global or regional modeling and interpretation of data and models in terms of tectonic, geological or geophysical implications. |  |
| JA10 | Electromagnetic Signals Generated by Volcanic Eruptions/Activity, Fluid Pressure, Earthquakes and Aseismic Fault Slip | * IAGA: **Jacques Zlotnicki** (France) [jacques.zlotnicki@wanadoo.fr](mailto:jacques.zlotnicki@wanadoo.fr) * IAGA: Malcolm Johnston (USA) [mal@usgs.gov](mailto:mal@usgs.gov) * IASPEI: Takeshi Hashimoto (Japan) [hasimoto@mail.sci.hokudai.ac.jp](mailto:hasimoto@mail.sci.hokudai.ac.jp) * IAVCEI: Yoichi Sasai (Japan) [yosasai@zag.att.ne.jp](mailto:yosasai@zag.att.ne.jp) | IAGA  IAVCEI  IASPEI | This session focuses on bringing together examples of multi-parameter observations during volcanic activity and earthquake rupture (Part 1), non-eruptive volcanic activity (Part 2) and aseismic fault activity (Part 3) in order to identify the dominant but perhaps changing physical processes involved. Knowledge of the non-uniform EM tomography of volcanoes and fault systems is a necessary prerequisite for modeling these different processes. We welcome studies that cross disciplines, jointly interpret different observations and those that link lithosphere dynamics with processes occurring at the Earth’s surface and the deeper mantle. | See Note JA10 |
| JA11 | Cratonic structure and dynamics | * IAGA: Nikolay Palshin (Russia) [nikolay.palshin@gmail.com](mailto:nikolay.palshin@gmail.com) * IAGA: Ute Weckmann (Germany)   [uweck@gfz-potsdam.de](mailto:uweck@gfz-potsdam.de)   * IASPEI: Sergei Lebedev | IAGA  IASPEI | This session seeks contributions that address structure, constitution, evolution and the dynamic processes that have shaped lithosphere based on a range of approaches, including seismology and electromagnetic studies. | See Note JA11 |
| JA12 | Innovation in Geoscience Education and outreach | * IAGA: **Manoj Nair** (USA) [Manoj.C.Nair@Noaa.gov](mailto:Manoj.C.Nair@Noaa.gov) * IAHS: Christophe Cudennec (France) [cudennec@agrocampus-ouest.fr](mailto:cudennec@agrocampus-ouest.fr) * IAPSO: Isabelle Amsoye * IAMAS: Laura Gallardo (Chile)   [lgallard@u.uchile.cl](mailto:lgallard@u.uchile.cl)   * IASPEI: Raju Sarkar & Paul Danton | IAGA  IAHS  IASPEI  IAPSO  UNION | This Symposium calls for papers describing innovations in geoscience instruction methods. Papers are welcome describing advances in all levels of instruction, including secondary and higher education. We are particularly interested in papers about inventive approaches to inquiry based learning in all geosciences. Papers are welcome on all aspects of education including methodology, non-traditional areas of curriculum, case studies, etc. | Proposed by Edgar Bering, Education and Outreach Commission Chair for IAGA  To be confirmed:   * Paul Danton |

**Note JA2:** Data assimilation has become a valuable tool for improving our understanding of the Earth and its different dynamical layers, such as the core, mantle, oceans, atmosphere and magnetosphere. By merging sparse observations, complex physical models and their respective errors, data assimilation attempts to unveil hidden features of a given system as well as predicting its evolution. Although its long term development in the field of meteorology has led to a well-established framework, data assimilation methodologies still bear considerable challenges. Amongst those we can cite the numerical stability of ensemble-based methods such as the Ensemble Kalman Filter, the identification and handling of model errors and biases, the hybridization of variational and sequential approaches, and the usage of multi-model ensembles for parameter estimation. Moreover, in many fields of application, such as core and mantle dynamics, as well as volcanism and space weather, data assimilation remains fairly exploratory. However, these novel applications can provide a platform for further analysis of the aforementioned challenges.

**Note JA3:** The lithospheric magnetic field reflects properties like composition and temperature and carries information about tectonic, chemical, and thermal alterations that magnetized rocks have undergone throughout their history. Gravity field, apart from information on composition, reveals information about mass exchange mechanisms related to dynamic processes like sea level rise and glacial retreat. Magnetotelluric studies image Earth’s electrical conductivity from the near-surface to deep within the mantle. Seismic tomography provide maps of seismic velocity anomalies that can be inverted for density and temperature. Global heat flow measurements help constrain the lithospheric geotherm and Earth’s energy budget. These geophysical data sets, considered jointly or separately, provide us with a highly valuable data pool for the study of the Earth’s lithosphere.

**Note JA4:** Tectonic and geodynamic processes are essential for understanding long term Earth Dynamics and complex interactions between evolving endogenous and exogenous earth systems. Geophysical methods have the potential to address a wide variety of these processes on earth with applications in a variety of geological settings and scales, resulting in a key tool to better understand the Earth System as a whole. The global atmospheric electric circuit (GEC) comprises the thunderstorm activity maintaining a time-varying, globally-uniform electrical potential difference between the ionosphere and the Earth as well as downward electric currents in the fair weather regions.  The strength of the currents depends on the atmospheric conductivity and ionization produced mostly by galactic cosmic rays. The atmospheric electric field can be measured near the ground at different geographical locations, in particular in pristine atmosphere over Antarctic. The other powerful electrodynamic phenomena related to the intense lightening discharges and the transient luminous events (TLE) are observed by modern satellite-based instruments. The GEC variability is believed to affect cloud properties and modulate the atmospheric state.

**Note JA5:** Solar influence on climate keeps attracting much interest presently. This includes in particular the role of the Sun both in the past climate as in future climate variability as an important aspect. State-of the art climate models include a well resolved stratosphere and partly mesosphere. This allows the prediction of global climate and its changes taking into account expected solar related variability at short to long time scales. From solar eruptions, to solar-wind /magnetosphere/ionosphere interactions, to complex couplings of the Earth's global electrical circuit and Schumann resonances, to space-weather impacts on other planetary environments, the scientific puzzles to solve are complex and require advances in modeling. Nowadays, forecasting models range fromcompletely empirical, such as the prediction of geomagnetic indexes based on statistical regression analysis, to physics-based, for example, state-of-the-art MHD simulations of Coronal Mass Ejection propagation. The paradigm of 'grey-box modeling' lives between these two extrema: data-driven reduced models that on one hand stem froma physics description, and on the other hand rely on data analysis to fit the free parameters. This approach is highly effective for interpreting space-weather-related data. It can also be a useful tool in support of space missions throughout the solar system, as seen for example in global radiation modeling that includes the parameterization of space weather conditions in plasma- interaction scenarios. All of these modeling approaches benefit from mathematical techniques that have been typically studied in contexts outside that of space weather. This topic is thus a fertile ground for a broad range of interdisciplinary collaborations.

**Note JA10:** Changes in inter-related crustal stress, deformation, pressure/temperature of electrically conducting fluids and pore pressure in crustal rocks all occur in both volcanic regions and regions of seismic and aseismic fault failure. All these processes generate electric and magnetic (EM) fields.  Furthermore, global EM effects are observed in the atmosphere and ionosphere with explosive ash eruptions. While co-eruptive effects and co-seismic fault failure effects in EM fields, deformation, seismicity and geochemistry are readily observed and modeled, the inter-relation between various parameters during periods of volcanic unrest and aseismic activity that are driven by perhaps the same underlying physics is much less clear.

**Note JA11:** Cratons are regarded as the old and stable nucleus of continental lithosphere that have typically experienced and survived cycles of continental accretion and breakup. They are surrounded by younger mobile belts which might have acted as crumple zones to add to the stability of cratons.

**IACS - C**

| CODE | Title | Conveners | Associations | Description | Comments |
| --- | --- | --- | --- | --- | --- |
| JC1 | Projecting sea level in the 21st Century and beyond | * IACS: Andy Aschwanden (USA)   [aaschwanden@alaska.edu](mailto:aaschwanden@alaska.edu)   * IAMAS: Ben Marzeion (Germany)   [ben.marzeion@uni-bremen.de](mailto:ben.marzeion@uni-bremen.de)   * IAPSO: Gary T. Mitchum [mitchum@usf.edu](mailto:mitchum@usf.edu) | IACS  IAMAS  IAPSO | The seas are currently rising and the rise is expected to continue into the 21 century and beyond, challenging societies around the globe. The primary contemporary contributors to global mean sea level are thermal expansion due to warming oceans and melting glaciers and ice sheets. Spatially-varying changes in absolute and relative sea level arise from the associated changes in solid Earth loading and variability of the Earth's gravity field. This joint session brings together the fields of glaciology, oceanography, atmospheric sciences, hydrology, and solid earth geophysics to assess the relative importance of each component and their respective uncertainties over the next centuries with focus on both regional and global sea level changes. | Contributions from ice sheets, glaciers, thermal expansion, projections, uncertainties; This may be complimentary to JG2 [comment by Andrew: No. JG2 is changes in arctic hydrology, lake and river ice. This ice does not contribute to sea level change.  It would certainly be nice if this symposium or some other one covers past changes in sea level and how well these are understood. (M. MacCracken (IAMAS)) |
| JC2 | Sea ice variability and teleconnections | * IACS: James Renwick (New Zealand) [James.Renwick@vuw.ac.nz](mailto:James.Renwick@vuw.ac.nz) * IACS: Hiroyuki Enomoto . * IAPSO: * IAMAS: Thomas Lachlan-Cope (UK) [tlc@bas.ac.uk](mailto:tlc@bas.ac.uk) * IAMAS : Elisa Manzini (Germany) [elisa.manzini@mpimet.mpg.de](mailto:elisa.manzini@mpimet.mpg.de) * IAMAS: Thomas Spengler (Norway) [Thomas.Spengler@uib.no](mailto:Thomas.Spengler@uib.no) * IAMAS: John Cassano (USA) [john.cassano@Colorado.EDU](mailto:john.cassano@Colorado.EDU) * IAMAS: Matthew Lazzara (USA) [mattl@ssec.wisc.edu](mailto:mattl@ssec.wisc.edu), * IAMAS: Andrew Orr (UK) [anmcr@bas.ac.uk](mailto:anmcr@bas.ac.uk) | IACS  IAMAS  IAPSO  IAG | Sea ice extent has decreased dramatically in the Arctic over the past 30 years, contributing to rapid regional warming. Antarctic sea ice variability has been dominated by internal variability, with no strong multi-decadal trend. Understanding and modelling sea ice variations remains a challenge at both poles. In the Arctic, sea ice loss is associated with rapid regional warming and effects on mid-latitude climate. In the Antarctic, sea ice change may affect ice shelf behaviour and hence could affect sea level change. Studying similarities and differences between the poles is likely to improve our understanding of both Arctic and Antarctic change. | Cause of dramatic sea ice minima, bi-polar perspectives, interaction between ice-shelf melting, sea ice and atmospheric/oceanic circulation  This symposium now includes JM2 (IAMAS). JM2 Has been removed  JC2 seems to be designed to cover last 30 years, but what about before that? (M. MacCracken (IAMAS)) |
| JC3 | Mountain cryosphere hazards | * Marten Geertsema (Canada) [marten.geertsema@gov.bc.ca](mailto:marten.geertsema@gov.bc.ca) * John J. Clague, (Canada) [jclague@sfu.ca](mailto:jclague@sfu.ca) * Michael Krautblatter (Germany)   [m.klautblatter@tum.de](mailto:m.klautblatter@tum.de)   * IAVCEI: | IACS  IAMAS IAVCEI | High mountains are currently experiencing some of the largest changes in climate on the planet. Climate warming is driving changes in geomorphic processes operating in mountains, with attendant large impacts on landscapes and ecosystems. This symposium features presentations on the hazards faced by people living and recreating in high mountains, notably avalanches, landslides, debris flows, earthquakes, outburst floods from glacier- and moraine-dammed lakes, volcano-ice interactions, permafrost thaw, and cascading processes. We welcome case studies and contributions featuring state-of-the art tools useful for assessing mountain hazards, including satellite and ground-based InSAR, LiDAR, unmanned aerial vehicles, and modelling using state-of-the art numerical codes | Avalanches, glacier outburst floods, volcano-ice interactions, permafrost, landslides |
| JC4 | Declining glaciers and snow cover and their impacts on downstream hydrology | * IACS: **Regine Hock** (USA) [rehock@alaska.edu](mailto:rehock@alaska.edu) * IAHS: Danny Marks [ars.danny@gmail.com](mailto:ars.danny@gmail.com) * IAHS: Alexander Gelfan [hydrowpi@mail.ru](mailto:hydrowpi@mail.ru) * IAMAS: | IACS  IAMAS  IAHS | Snow and ice melt controls streamflow in many watersheds around the world. A warming climate has started to induce hydro-climatic systems to transition from snow to rain dominated conditions. As glacier mass loss proceeds and snow cover declines, significant changes in the hydrological regime are expected to affect millions of people downstream of mountainous regions. Being able to predict the amount and timing of meltwater is therefore of paramount importance. This session will focus on new insights into relevant processes, new observational evidence of ongoing changes, as well as advances in our ability to project future water availability based on models with a physical foundation. | High Mountain Asia, black carbon, river flows, etc |
| JC5 | Climate change impacts on Arctic snow, permafrost, lake and river ice | * IACS: Chris Derksen (Canada) [chris.derksen@canada.ca](mailto:chris.derksen@canada.ca) * IACS: Homa Kheyrollahpour (Canada)   [h2kheyro@uwaterloo.ca](mailto:h2kheyro@uwaterloo.ca)   * IACS: Alexandrew Langlois (Canada)   [alexandre.langlois2@usherbrooke.ca](mailto:alexandre.langlois2@usherbrooke.ca)   * IACS : Richard Kelly (Canada)   [rejkelly@uwaterloo.ca](mailto:rejkelly@uwaterloo.ca)   * IACS : Claude Dugauy (Canada)   [crduguay@uwaterloo.ca](mailto:crduguay@uwaterloo.ca)   * IAHS: Alexander Gelfan [hydrowpi@mail.ru](mailto:hydrowpi@mail.ru) | IACS  IAHS | The terrestrial cryosphere in the Arctic is undergoing rapid change, evident in shorter snow cover and lake ice duration, changing ice regimes and discharge in northern flowing rivers, warming ground temperatures, decreasing ground ice content, and increasing active layer thickness. These changes have inter-connected impacts on, and feedbacks with, energy and freshwater budgets, vegetation dynamics, the carbon cycle, and aquatic and terrestrial ecosystems. Determining the inter-connected nature of changes to the terrestrial cryosphere, and the ability of climate models to simulate future change pathways will improve understanding of the impacts of climate change on the Arctic | Is the community large enough?  Has special relevance in Canada |
| JC6 | Is the West Antarctic Ice Sheet Collapsing? Atmosphere, ice, and ocean interactions | * IACS: Ted Scambos (USA) [teds@nsidc.org](mailto:teds@nsidc.org) * IAMAS, * IAPSO, | IACS  IAMAS  IAPSO | The sea level rise potential of northern coast of West Antarctica is more than 2 m, and under some scenarios a rapid ice loss increase could begin before the end of the century. Recent changes in air and ocean circulation along the Amundsen Sea -West Antarctic Ice Sheet coast have led to ice shelf thinning, glacier grounding line retreat, and large ice mass imbalances as the major outlet glaciers along this coast increase in speed. These changes are of major concern for future sea level rise because of several potential instabilities that may be triggered in coming decades — or that may have already begun. Complex interactions between the ice, air, and ocean are mediated by processes that are difficult to observe but are critical for accurate forecasts of future behaviour. Remote sensing observations continue to provide a detailed and accurate picture of the scale, pace, and acceleration of changes on the ice sheet, but sub-surface observations are needed to push our understanding of the region further. | Hot topic with global implications  IPCC Special Report, to be published end 2018  IAMAS: Combined with JM1?  JC6 looks pretty closely related to JC1. (M. MacCracken (IAMAS)) |
| JC7 | Gravity-driven flows in the  Earth system | * IACS: **Dieter Issler** (Norway), [Dieter.Issler@ngi.no](mailto:Dieter.Issler@ngi.no) * IAPSO: **Federico Falcini (**Italy), [federico.falcini@gmail.com](mailto:federico.falcini@gmail.com) * IAVCEI: **Roberto Sulpizio** (Italy), [roberto.sulpizio@uniba.it](mailto:roberto.sulpizio@uniba.it) | IACS  IAPSO  IAVCEI | This joint symposium is aimed to highlight the state of the art of studies of geophysical mass flows. Contributions will set and address future research challenges in this important interdisciplinary branch of science. |  |

**Note JC7:** Gravity-driven flows are some of the most complex and hazardous natural phenomena on Earth. They can occur in different environments, both subaerially and subaqueously. Some of them are easily recognisable in the geologic record, while other are ephemeral. Among the most common gravity-driven flows are landslides, snow avalanches, pyroclastic density currents, and debris flows. Sediment-gravity currents, dense-flow cascading processes, underwater slumps and landslides on continental shelves are common in the oceans. Understanding of these natural phenomena is far from satisfactory, and progress requires both improved observations and modelling. These phenomena share similar governing equations, but may differ in composition, initial and boundary conditions, and entrainment processes, all features that lead to different dynamics and thus different fates for their loads. Field studies of sediment gravity flow deposits are irreplaceable for reconstructing fluid mechanical processes. However, due to the very hostile nature of most of these phenomena, precious insights on their basic physics can also be obtained though both scaled-laboratory experiments and well-parametrized numerical simulations.

**IAG - G**

| CODE | Title | Conveners | Associations | | Description | Comments |
| --- | --- | --- | --- | --- | --- | --- |
| JG1 | Monitoring relationships solid Earth, ice sheets and hydrosphere interactions | * IAG: **M. Horwath** (Germany) * IACS, IAG: **Matt King** (Australia) [matt.king@utas.edu.au](mailto:matt.king@utas.edu.au) * IACS, IAG: **Pippa Whitehouse** (UK) [pippa.whitehouse@durham.ac.uk](mailto:pippa.whitehouse@durham.ac.uk) * IACS: Bert Wouters (Netherlands)   [b.wouters@uu.nl](mailto:b.wouters@uu.nl) | IAG  IACS | Measurements of solid Earth, sea-level and ice-sheet change are influenced by a complex interaction of processes occurring over a large range of spatial and temporal scales. Proxy observations that constrain past ice sheets are influenced by glacial isostatic adjustment and changing mantle dynamic topography. Present-day observations of solid Earth deformation in one location are affected by present and past changes in global surface loading. Recent work highlights the role that solid Earth deformation has to play in controlling ice-sheet change, while seismological investigations are revealing crucial spatial variations in Earth rheology. In this symposium, we showcase model- and data-driven efforts to understand feedbacks between the cryosphere and the solid Earth. | | Remote sensing, altimetry, gravimetry, GNSS,, and |
| JG2 | Theory and methods of potential fields | * IAG: **D. Tsoulis** (Greece), * IAG: S. Claessens (Australia) * IAGA: ? | IAG  IAGA |  | | May consider additional Associations |
| JG3 | Near-real time operational monitoring of water mass changes | * IAG: **J. Kusche** (Germany) * IAMAS: | IAG  IAMAS |  | | Droughts, floods, etc.  May consider additional Associations |
| JG4 | Geodesy for atmospheric and climate research | * IAG: **A. Eicker** (Germany) * IAMAS: | IAG  IAMAS |  | | May consider additional Associations |
| JG5 | Remote sensing and modelling of the atmosphere | * IAG: **M. Schmidt** (Germany) * IAMAS: Claudia Stubenrauch (France)   [stubenrauch@lmd.polytechnique.fr](mailto:stubenrauch@lmd.polytechnique.fr)  Others? | IAG  IAGA  IAMAS IAVCEI |  | |  |
| JG6 | Monitoring Sea Level Changes by Satellite Altimetry and Gravimetry and in-situ measurements | * IAG: **X. Deng** (Australia) * IAPSO: Laurent Testut (not contacted yet) | IAG  IAPSO |  | | May consider additional Associations |
| JG7 | Monitoring, imaging and mapping of volcanic belts | * IAG: **J. Fernandez** (Spain) * Martyn Unsworth * IAVCEI: Patrick Whelley, * Jacob Richardson, * IAVCEI: Mark Bebbington * Others? | IAG  IAVCEI IASPEI  IAGA | A range of important geological processes occur beneath volcanic belts. Subsurface fluxes of magma and hydrothermal fluids have generated both the continental and oceanic crust, and formed many mineral deposits. However the crustal structure of volcanic belts is not fully understood. This session seeks to advance this research area by gathering researchers studying the subsurface structure of active volcanic systems. We welcome all contributions that present (a) geophysical studies of volcanic belts and (b) geological studies that seek to interpret geophysical models in terms of laboratory experiments, c) Geodetic measurements, imaging and topography of volcanic belts | | Includes JA10 and JV13 that have now been removed.  Provide emails |

**IAHS - H**

| CODE | Title | Conveners | Associations | Description | Comments |
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| JH1 | Scientific inputs to water-related SDGs of the agenda 2030 | * IAHS: **Christophe Cudennec** (France) * UNESCO, WMO, UNU, UNEP invited | IAHS  IAMAS | The United Nations member states adopted the Agenda 2030 in September 2015, structured into 17 Sustainable Development Goals – SDGs. The transformative process towards 2030 is ambitious, complex and holistic and Science has to contribute through different ways of understanding, quantifying and exploring processes, interdependencies, innovations, and of putting into practice. This requires handling a specific data-indicator-(dis-)aggregation-displaying chain, addressing new scientific questions, articulating knowledge and disciplines, quantifying change, assessing coevolution and interfaces, supporting foresight and political decisions…  SDG6 is dedicated to water. Many intra-SDG6 linkages between targets, and many inter-linkages with other SDGs are identified. And a huge diversity is concerned through the hydrological, the sociological and institutional, and the methodological heterogeneities across geography and scales. The States and UN Agencies are assessing the actual baseline, and setting up the arrow of indicators. A first Synthesis report is to be issued in June 2018 to feed the High Level Political Forum in July 2018. A data portal will be launched end of the 2018 summer. These shall support actions and progress monitoring in the coming years. The whole is further enhanced by the 2018-2028 Decade for action on water, launched on 22 March 2018. Time is thus to call the scientific community to look at the status, data and process; and to elaborate further analyses and methods, bridge gaps, and support action. This session welcomes contributions on any SDG-oriented science in the field of water and interdependencies. | With UNESCO, WMO,UNEP – liaison ongoing; [IAMAS: collaboration with U01 and JM1] |
| JH2 | Climate and hydrological services: Bridging from science to practice and adaptation | * IAHS: **Harald Kunstmann** (Germany) [harald.kunstmann@kit.edu](mailto:harald.kunstmann@kit.edu) * IAHS: Berit Arheimer (Sweden) [Berit.Arheimer@smhi.se](mailto:Berit.Arheimer@smhi.se) * IAMAS: Neil Holbrook (Australia) [Neil.Holbrook@utas.edu.au](mailto:Neil.Holbrook@utas.edu.au) * IAG: L. Longuevergne (France) * WMO committed, name tbc | IAHS  IAMAS  IAG | With climate change and decreasing water availability per capita being one of the crucial challenges for society in the 21st century, there is the urgent need to develop and initiate adaptation measures. The provision of state of the art climate- and hydrology information for services has been initiated for different regions worldwide in order to approach the manifold demands of stakeholders, particularly in water management, agriculture, energy production or civil protection. This symposium invites for abstracts that address the challenges faced in both climate- and hydrological service provision when bridging from science to practice and finally to the derivation of adaptation measures. This comprises particularly contributions on 1) provisions of high-quality real-time and historical data from national and international databases, 2) hydrometeorological forecasts and particular subseasonal to seasonal predictions, 3) high resolution downscaling efforts of global climate scenarios, 4) development of bias-correction techniques for provided hydrometeorological fields, 5) solutions for digital and open data access, 6) development of methods to overcome limitations due to limited observation data density or –quality, 7) efforts to improve structure and parameterization of models, 8) improved ways to communicate scientific results and uncertainty to decision makers to increase chances of uptake, 9) examples and descriptions of case studies and initiatives worldwide, including the role of local and national legislations that help the adaptation process. | With WMO |
| JH3 | Geosciences in the Anthropocene: Observing and modelling human-nature interactions in a changing environment | * IAHS: **Giuliano di Baldassarre** (Sweden) [giuliano.dibaldassarre@geo.uu.se](mailto:giuliano.dibaldassarre@geo.uu.se) * IAHS co-conveners tbc depending on profile of other associations' co-conveners | IAHS  IAMAS | This session welcomes abstracts that consider how to observe, model and analyse interactions of human and natural systems, and the effects of socio-economic trends and environmental change. It is organised as part of the IAHS Panta Rhei hydrological decade 2013-2022.  It focuses on advancing our understanding (and developing models) of dynamics produced by the mutual shaping of social and physical processes.  Examples of relevant areas include:  - Creation of databases describing geosciences in human-impacted systems.  - Observations of human impacts on, and responses to, environmental change.  - Interactions of communities with natural resources.  - Geophysical and hydrological models that include anthropogenic effects.  - Data analysis and comparisons of couple human-nature systems around the globe and especially in developing and emerging countries.  - Human interactions with extreme events, i.e. floods, droughts, and landslides. | Panta Rhei decade |
| JH4 | MOXXI: Innovation and multidisciplinarity to observe Earth Processes | * IAHS: **Flavia Tauro** (Italy) [flavia.tauro@unitus.it](mailto:flavia.tauro@unitus.it) * IAMAS: Piet Stammes (Netherlands)   [stammes@knmi.nl](mailto:stammes@knmi.nl)   * IAHS co-conveners tbc depending on general convening profiles * WMO committed, name tbc | IAHS  IAMAS | According to recent surveys in hydrology, traditional monitoring systems and challenges in maintaining current monitoring networks are a significant bottleneck to the comprehension of natural processes. Specifically, standard observational equipment is expensive, offers limited spatial (and often temporal) coverage, mandates access to trained staff and resources, and involves high costs.  In this vein, the International Association of Hydrological Sciences has supported the foundation of the Measurements and Observations in the XXI Century (MOXXI) working group with the aim to promote the advancement of novel observational techniques, leading to new sources of information to help better understand the hydrological cycle. The group’s interests revolve around the following pillars:   * Process understanding is enhanced when scientists proactively design and develop their measurement tools and methodological approaches by adjusting them to answer their specific questions. * Successful observational approaches often rely on knowledge from other fields of science. * Innovative measurement systems may entail a DIY approach, using low-cost and unintended instrumentation, and/or performing smart (opportunistic) observations.   For instance, precipitation has been measured with moving cars and accelerometers, and water levels have been monitored with game-console remote controls.  This session encourages scientists from all realms of geodesy and geophysics to share their innovative ideas to observe Earth processes. Scientists that build their own instruments and/or use existing equipment in innovative ways are highly encouraged to present their approaches and solutions to fellow researchers.  Contributions will address the key issue of providing accurate and reliable measurements at different spatial and temporal scales, in ungauged sites, and in challenging environments. | With WMO |
| JH5 | Citizen Sciences | * IAHS: **Fernando Nardi** (Italy)   [fernando.nardi@unistrapg.it](mailto:fernando.nardi@unistrapg.it)   * UNESCO committed, name tbc | IAHS |  | Wiwith UNESCO |
| JH6 | Advances in snow hydrology | * IAHS: **Tobias Jonas** (Switzerland) [jonas@slf.ch](mailto:jonas@slf.ch) * IAHS: Timothy Link (USA) [tlink@uidaho.edu](mailto:tlink@uidaho.edu), * Melody Sandells (UK) [melody.sandells@coresscience.co.uk](mailto:melody.sandells@coresscience.co.uk) * Danny Marksars.danny@gmail.com , * Alexander Gelfan (Russia)   [hydrowpi@mail.ru](mailto:hydrowpi@mail.ru) | IAHS  IACS | The storage and release of water from seasonal snowcovers constitutes a critical component of the annual hydrological cycle in many parts of the world. Quantifying, understanding, and predicting the processes that control snow distribution and ablation dynamics provide ample research challenges, especially in complex mountainous terrain. The spatial distribution of snowcover and its physical properties is typically highly variable at the meter to the regional scale. Its dynamics are influenced by surrounding topography and vegetation that control accumulation and redistribution processes, as well as local micrometerological conditions that control snowcover energetics and ablation. Accurate modelling of snowcover dynamics requires methods to simulate a large range of physical processes that act and interact at a range of spatial and temporal scales. Advances in these areas are needed and relevant to develop improved tools for water managers concerned with floods, droughts, water supply, and/or hydropower generation.  This session will bring together experimental and modeling experts to address recent research in snow hydrology. We especially encourage contributions related to topics such as:  - Novel measurement approaches for snowpack states and fluxes  - Feedbacks between climatic and snow hydrological processes and patterns  - Snow-vegetation interactions in complex terrain  - Effects of climate variability and change, especially in the rain-snow transition zone  - Impact of landcover changes on snow hydrology  - Advances in modeling, including operational applications  - Representing small scale variability in large scale modeling applications |  |

is IACS CO6 becoming joint or is explicit crossed listing possible in the online progr? Coupling Processes between the Atmospheric Boundary-Layer and Snow/Ice Surfaces: Observations and Modelling

The symposium addresses fundamental exchange mechanisms of mass and energy between the cryosphere, vegetation and the atmospheric boundary layer in snow-covered regions. The interaction between the near-surface atmosphere and the cryosphere can lead to significant spatial and temporal variations of momentum, mass- and energy exchange as well as complex atmospheric flow patterns that are modulated by complexities in topography and vegetation cover. Horizontal advection of blowing snow, heat and water vapour in particular are poorly represented in models. These processes strongly affect the temporal and spatial evolution of seasonal snow cover, permafrost, sea ice, vegetation and glaciers and drive snow and ice hydrology. Furthermore, the feedbacks between changing snow/ice surfaces and the atmosphere have a very strong influence on the boundary layer, which is insufficiently understood and suggests a grand challenge is to accurately describe the co-development of the atmosphere and cryosphere.   
We invite contributions that consider boundary-layer meteorology, turbulent energy and mass fluxes and exchanges in cryospheric environments. Examples include the treatment of turbulent fluxes in models and measurements, advection of energy to patchy snow-covers, orographically-induced precipitation, preferential deposition of snowfall or wind-induced snow transport and sublimation. Both, model studies and experimental work in level and complex terrain are welcome, as are studies that address mountain environments – a priority identified by GEWEX-INARCH. We particularly encourage abstracts that propose advances in a) modelling techniques to represent the physics of coupling the atmospheric boundary layer to snow and ice surfaces and b) observational techniques to explore complex processes that govern the mass and energy exchange between the lower boundary layer and the snow/ice surface.   
  
Conveners: Vincent Vionnet, Rebecca Mott, Ruzica Dadic, John Pomeroy, Ethan Gutmann, Tobias Jonas

**IAMAS - M**

| CODE | Title | Conveners | Associations | Description | Comments |
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| JM1 | Adapting in the Anthropocene | * Keith Alverson (Kenya) [keith.alverson@gmail.com](mailto:keith.alverson@gmail.com) * IAHS: Gia Destouni (Sweden) [georgia.destouni@natgeo.su.se](mailto:georgia.destouni@natgeo.su.se) | IAMAS  IAHS  IACS  cross-listed to IAPSO | The detection and attribution of significant human impact on the global environment has been robustly shown across a number of Earth system components. In this context, the concept of planetary boundaries and tipping points has received substantial visibility. Well known examples include greenhouse gas and aerosol levels in the atmosphere, plastic and acidification in the ocean, and biodiversity loss, nutrient and toxic chemical loading in terrestrial, freshwater and coastal ecosystems. This session will highlight examples of where we are experiencing the kind of dominant human impacts on the global environment that define the Anthropocene, with a focus on actions that can be taken to reverse the anthropogenic forcings, reduce their adverse impacts on the Earth system, and provide sustainable services, including food security, for a growing and increasingly affluent global human population. | The title should be properly determined in communication with IAHS. A candidate is "Signatures of the human being in the climate and hydrological system of the Anthropocene"  [Other candidates] Frances Westley (Stockholm Resilience Center); Johan L. Kuylenstierna (Stockholm Environment Institute), Markus Amann (Program director, IIASA), |
| JM2 | Changes in chemistry and physics of the Atmosphere: evidence and attribution studies | * John P. Burrows (Germany) [burrows@iup.physik.uni-bremen.de](mailto:burrows@iup.physik.uni-bremen.de) * Maria Kanakidou (Greece)   [mariak@chemistry.uoc.gr](mailto:mariak@chemistry.uoc.gr)   * IAG: I. Panet (France) | IAMAS  IACVEI  IAG | This session focuses on the impact of natural emissions, such as those from volcanoes, and anthropogenic fluxes on atmospheric composition, chemical transformation, dynamics and climate. In this context we welcome contributions from  i) laboratory and chamber studies  ii) field measurements;  iii) satellite observations;  iv) numerical modelling;  v) scientific and socio-economic assessments. | Attribution of long lived greenhouse gases (LLGHGs), especially methane, change |
| JM3 | Advances and Frontier Challenges in Global Monsoon Studies: Dynamics, Convection and Interactions with Hydrological and Land Surface Processes | * Jianping Li (China) [ljp@bnu.edu.ac.cn](mailto:ljp@bnu.edu.ac.cn) * Andrew Turner (UK) [a.g.turner@reading.ac.uk](mailto:a.g.turner@reading.ac.uk) * Sumant Nigam   [nigam@umd.edu](mailto:nigam@umd.edu)   * Iracema Cavalcanti [racema.cavalcanti@gmail.com](mailto:racema.cavalcanti@gmail.com) * E. Hugo Berbery (USA) [berbery@umd.edu](mailto:berbery@umd.edu) * Kyung-Ja Ha (Korea) [kjha@pusan.ac.kr](mailto:kjha@pusan.ac.kr) * Fred Kucharski (Italy) [kucharsk@ictp.it](mailto:kucharsk@ictp.it) * Allesandra Giannini (USA) [alesall@iri.columbia.edu](mailto:alesall@iri.columbia.edu) * Serge Janicot (France) [Serge.Janicot@locean-ipsl.upmc.fr](mailto:Serge.Janicot@locean-ipsl.upmc.fr) * IAHS: Elango Lakshmanan elango@annauniv.edu * Kirsten Thonicke (Germany)   [kirsten.thonicke@pik-postdam.de](mailto:kirsten.thonicke@pik-postdam.de) | IAMAS  IAHS | Advances and frontier challenges in global monsoon studies, including observational, diagnostic, theoretical, modelling and prediction studies of the monsoons and related hydrological processes:  - Formation, variability and dynamics of the global monsoons from the paleomonsoon to the present day at various time-scales;  - Linkages with the principal modes of climate variability and related energy and hydrological cycles under a warmer climate;  - Interactions among monsoons, hydrological cycle, vegetation and land surface processes;  - Impacts of monsoons on extreme weather and climate events as well as water resources;  - Predictive skill of the coupled atmosphere-ocean-land system in the monsoon regions; future projection of the monsoons and hydrological cycle under global warming.  In addition, presentations are also invited on the latest results from monsoon field experiments. | See note JM4  Association Affiliations of conveners missing  Reduce list of conveners |
| JM4 | Hydrometeorologic coastal extremes in current and future climates | * IAMAS: **Laxmi Sushama** (Canada) [laxmi.sushama@mcgill.ca](mailto:laxmi.sushama@mcgill.ca) * Marie Ekstrom,   [EkstromM@cardiff.ac.uk](mailto:EkstromM@cardiff.ac.uk)   * Richard Grotjahn (USA) [grotjahn@ucdavis.edu](mailto:grotjahn@ucdavis.edu) * IAHS: Hubert Savenije (Netherlands) [h.h.g.Savenije@tudelft.nl](mailto:h.h.g.Savenije@tudelft.nl) * Paul Kushner (Canada)   [paul.kushner@utoronto.ca](mailto:paul.kushner@utoronto.ca)   * Brian Golding (UK)   [brian.golding@metoffice.gov.uk](mailto:brian.golding@metoffice.gov.uk) | IAMAS  IAHS | This symposium examines hydrometeorologic and coastal extremes in terms of their causal mechanisms, modelling and forecasting, and the adaptation-mitigation-sustainability-resilience nexus. Contributions are invited in the following and related areas:  - Advances in modelling observed precipitation extremes, floods, droughts and wildland fire, and storm surges;  - Advances in understanding causal mechanisms of observed hydrometeorologic and coastal extremes;  - Climate change and evolution of extreme hydrometeorologic and coastal extremes;  - Forecasting, management, and emergency evacuation planning for riverine, urban and coastal floods;  - Forecasting, management and mitigation of hydrometeorologic droughts;  - Hydroclimatic extremes in relation to resilient and sustainable infrastructure.  Abstracts on topics that are primarily on meteorological extremes modeling, mechanisms, and forecasting are encouraged for submission to the symposium on High-impact Weather and Climate Extremes. | Refer to IAHS program for possible overlaps  See note JM5 |
| JM5 | Role of Ocean-Atmosphere Interactions in Climate Variability, Change and Predictability | * IAMAS: **Tim Woollings** (UK) [tim.woollings@physics.ox.ac.uk](mailto:tim.woollings@physics.ox.ac.uk) * IAMAS : Hisashi Nakamura (Japan) [hisashi@atmos.rcast.u-tokyo.ac.jp](mailto:hisashi@atmos.rcast.u-tokyo.ac.jp) * IAMAS: Iracema Cavalcanti [iracema.cavalcanti@gmail.com](mailto:iracema.cavalcanti@gmail.com) * IAPSO: Toshio Yamagata(Japan) [yamagata@jamstec.go.jp](mailto:yamagata@jamstec.go.jp) | IAMAS  IAPSO | Theory, modelling and observational work on topics including: Tropical coupled variability and teleconnections, mid-latitude air-sea interaction, ocean frontal zones, representation of air-sea interaction in models, role of ocean variability in predictability on all timescales and ocean-atmosphere coupling under climate change.  Climate variability and predictability of ENSO, IOD and other climate modes | Refer to IAHS program for possible overlaps |
| JM6 | Recent advances in regional climate modelling | * IAMAS : **Anne Frigon** (Canada) [frigon.anne@ouranos.ca](mailto:frigon.anne@ouranos.ca) * IAMAS: Martin Leduc (Canada) [educ.martin@ouranos.ca](mailto:educ.martin@ouranos.ca) * IAMAS : René Laprise (Canada) [laprise.rene@uqam.ca](mailto:laprise.rene@uqam.ca) | IAMAS,  MORE ASSCOCIATIONS | -Validation of models through comparison with observations, using various approaches to diagnose the behavior of the model at different spatial and time scales, as well as looking into feedback mechanisms.  -Analysis of multi-model ensembles (such as CORDEX) for climate-change studies.  -Analysis of single model large ensembles.  -Added value of high-resolution simulations, reaching convection-permitting models.  -Analyses of large-scale patterns and their links to local-scale impacts. | NEW Proposal made by CMOS |
| JM7 | Artificial Intelligence and Big data in weather and climate science | * IAMAS : **Philippe Roy** (Canada) [roy.philippe@ouranos.ca](mailto:roy.philippe@ouranos.ca) * IAMAS: Alexis Hannart (Canada) [hannart.alexis@ouranos.ca](mailto:hannart.alexis@ouranos.ca) * IAMAS: David Hall   [dhall@nvidia.com](mailto:dhall@nvidia.com)   * IAMAS: Allen Huang (USA)   [allenh@ssec.wisc.edu](mailto:allenh@ssec.wisc.edu)   * IAMAS: Scott Hosking (UK)   [jask@bas.ac.uk](mailto:jask@bas.ac.uk)   * IAHS: Ashish Sharma (Australia) [a.sharma@unsw.edu.au](mailto:a.sharma@unsw.edu.au) | IAMAS  IAPSO  IAHS | Rapid advances in artificial intelligence, combined with the availability of enormous amount of data (termed Big Data) is opening new avenues for climate analysis and climate scenarios. The long awaited promises of AI is now common in many disciplines. Applying AI methods, combined with physical knowledge, can improve climate analysis and provide better climate simulations and climate products, notably for high-impact events, such as floods, wildfires and winds. | NEW Proposal by CMOS |
| JM8 | Earth System Models: Assessing the Earth System’s State and Fate from Regional to Planetary Scales | * IAMAS: **Paul Kushner** (Canada) * IAMAS: N. Gillett (???????), * others | IAMAS  IAPSO  IACS  IAHS | Earth System Models provide our principal means to simulate Earth System processes and to predict the evolution of the planet. Each generation of Earth System Models, including components that simulate the atmosphere, oceans, land, vegetation, ice, snow, and the dynamical and biogeochemical processes that link these components, has provided new insights into the workings of the Earth System, predictions from seasonal to decadal scales, and projections of the future of the planet under greenhouse warming and other sources of radiative and compositional driving. These models can be statistically and dynamically downscaled to investigate socio-economic impacts of climate variability and change and provide regional-scale projections. This session encourages contributions dealing with the many facets of Earth System Models, including the latest developments under the Coupled Model Intercomparison Project Phase 6, assessment of model performance in comparison to Earth observations from ground-based and space-based measurements, prediction of climate on seasonal to centennial timescales, regional climate modelling, climate change detection and attribution, process understanding and subgrid scale parameterization development, and climate change impacts assessment on regional scales. | NEW Proposal by CMOS |

**Note JM4:** Extreme hydrometeorologic and coastal events can have devastating impacts on the human society and can result in millions of dollars in damages. Science and engineering is continuously evolving to predict, model and manage these events and to de-risk society from their harmful effects. These events range from localized flooding caused by heavy rainfall over short period of time to large scale flooding caused by heavy snowmelt combined with ice-jam and rainfall or coastal flooding caused by extreme surge and wind combinations. Extreme events are often complex in terms of causal mechanisms and therefore require investigation from a multi-dimensional perspective. Effective management of the whole cycle of disaster preparedness, early warning, crisis management, response and recovery requires strong scientific evidence. Advances in understanding these extremes from a multi-dimensional viewpoint and modeling from both physical and statistical viewpoints will continue to evolve as new tools and approaches will become available.

**IAPSO - P**

| CODE | Title | Conveners | Associations | Description | Comments |
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| JP1 | Tides of the oceans, atmosphere, solid earth, lakes and planets | * IAPSO: **Richard Ray** (USA) [richard.d.ray@nasa.gov](mailto:richard.d.ray@nasa.gov), * Philip Woodworth (UK) [plw@noc.ac.uk](mailto:plw@noc.ac.uk), * Mattias Green (UK) [m.green@bangor.ac.uk](mailto:m.green@bangor.ac.uk) * Gary T. Mitchum [mitchum@usf.edu](mailto:mitchum@usf.edu) * IAG: Phil Woodworth is an IAG Fellow and can act as IAG co-convenor if there are no other suggestion from IAG * IAMAS: Tim Dunkerton (North West Research Associates) * IAHS:Andreas Richter (Univ La Plata) | IAPSO  IAHS  IAMAS  IAG | This session is concerned with many aspects of tides. It will include the accuracy of ocean tide models, tidal dissipation and its role in geophysics, internal tides and their role in ocean mixing and ocean circulation, secular changes in tides, techniques for measurement and analysis of tides, tides in the origin of life on earth and palaeotides. The session will also include presentations on tides of the solid earth, atmosphere, lakes and planets. It will mark the 100th anniversary of the Liverpool Tidal Institute which led to many advances in tidal science in the 20th century. | Potential invited speaker names:  Ocean tides (barotropic and energetics) - Florent Lyard (GRGS), backup Richard Ray (GSFC, NASA)  Ocean tides (internal) - Ed Zaron (Portland State Univ.), backup Brian Arbic (Univ. Wisconsin)  Atmospheric tides - Jeffrey Forbes (Colorado Center for Astrodynamics Research) (he was awarded the EGU Julius Bartels Medal in 2016)  Solid earth tides - Duncan Agnew (Scripps)  Geophysics - Mattias Green (Univ. of Bangor) on origin of moon and paleotides.  Planetary tides - Luciano Iess (Università La Sapienza) A paper in Science in 2012 pointed to an ocean under the surface using Cassini. Backup or instead, David Vincent (Univ Louvain). |
| JP2 | The North Atlantic-Arctic system: State, Process, and Change | * IAPSO: **Thomas Haine** (USA)   [Thomas.Haine@jhu.edu](mailto:Thomas.Haine@jhu.edu)   * IAMAS: Rodrigo Caballero (Sweden) * IAMAS: Mojib Latif (Germany) | IAPSO  IAMAS  IACS | The North Atlantic-Arctic Ocean, Atmosphere, and sea ice system influences regional, hemispheric, and global climate. It is where anthropogenic climate change is most conspicuous, such as the decline in summer-time sea ice, and very uncertain, like the future of the Greenland Ice Sheet. Recognition of these facts in the last decade, and greatly expanded observing networks, are revolutionizing knowledge and understanding of its oceanography, cryospheric, and atmospheric sciences. This session invites contributions quantifying the current state of the North Atlantic/Arctic system, elucidating processes that maintain that state, and investigating how it is changing. The session will bring together observers, modelers, and theorists to report latest research. | **Notes:**   1. Potential additional IAPSO co-Convenors: Mary-Louise Timmermans (Yale), Benjamin Rabe (AWI), Paul Myers (Alberta), Takashi Kikuchi (JAMSTEC), Laura de Steur (Tromso) |
| JP3 | Long-term climate targets: from emissions to impacts | * IAPSO/IAMAS: Damon Matthews (Canada) [damon.matthews@concordia.ca](mailto:damon.matthews@concordia.ca) * IAPSO: Kirsten Zickfeld (Canada) [kzickfel@sfu.ca](mailto:kzickfel@sfu.ca) * IAHS: Eric Servat (France) [eric.servat@ird.fr](mailto:eric.servat@ird.fr)   More Conveners from IACS, IAMAS | IAPSO  IAMAS  IACS  IAHS  cross listed to IAVCEI | Long term global temperature and sea level increases are primarily determined by total anthropogenic emissions of carbon dioxide. Limiting cumulative greenhouse gas emissions is a prerequisite to stabilize long term global temperatures and slow down sea level rise. The scientific challenge is therefore to understand the climate warming legacy of current greenhouse gas emissions, to determine what levels of long term warming and sea level rise would produce unacceptably damaging impacts, and to better quantify the emissions budgets and pathways that would succeed in avoiding these levels of climate change. In this symposium, we welcome contributions on all aspects of this challenge. |  |
| JP4 | Past changes in the atmosphere, oceans and cryosphere, and their relevance for future climate. | * IAPSO: **Karen Kohfeld** (Canada) [kohfeld@sfu.ca](mailto:kohfeld@sfu.ca) (canada) * IAMAS: Qiuzhen Yin (Belgium) [qiuzhen.yin@uclouvain.be](mailto:qiuzhen.yin@uclouvain.be) * Anne de Vernal (Canada) [devernal.anne@uqam.ca](mailto:devernal.anne@uqam.ca) * IAGA: Tilo von Dobeneck (Germany)   [dobeneck@uni-bremen.de](mailto:dobeneck@uni-bremen.de)   * IACS: Molly O. Patterson, (USA) [patterso@binghamton.edu](mailto:patterso@binghamton.edu) | IAPSO  IAMAS  IACS  IAGA | Paleoceanographic and paleoclimatological research provides information on climate dynamics and biogeochemical cycling through time based on proxy reconstructions or model simulations of physical, chemical, and biological characteristics of the earth system. This session invites a wide range of data- and modeling-based presentations that aim to understand past behaviour of climate, ocean and ice. Submissions are encouraged on a range of topics, including glacial inceptions, millennial climate variability and abrupt change, characteristics of full glacial states, as well as past warm periods and their terminations as a means to better understand the future climate and its impacts on environment and ecosystems. | Potential invited speaker names:   * Eric Wolff (ew428@cam.ac.uk) from Cambridge University, specialized in ice core research and interglacial climates. |
| JP5 | Tsunamis | * IAPSO: **Vasily V. Titov** (USA) [Vasily.Titov@noaa.gov](mailto:Vasily.Titov@noaa.gov), * IAPSO: Christa G. von Hillebrandt-Andrade [christavon@gmail.com](mailto:christavon@gmail.com), * IAPSO: Fumuhiko Imumura * IASPEI: Alexander Rabinovich [a.b.rabinovich@gmail.com](mailto:a.b.rabinovich@gmail.com) * IAVCEI: Yuichi Nishimura | IAPSO  IASPEI  IAVCEI  U02 | Tsunamis present continuous hazard for growing coastal population around the world. Tsunami events of this century vividly illustrated increasing risk for coastal population and infrastructure. New tsunami warning capabilities of the XXI century expanded from Pacific to include all vulnerable coastlines of world oceans with new tsunami observations and forecast capabilities. The global warning system presents new challenges for tsunami science: development of new methods and tools accommodating new data and providing new capabilities, to make all coastal communities resilient to tsunami threat. The symposium will discuss all aspects of tsunami research and practical warning applications. | Communicated by Stefania  It has traditionally been a separate symposium of the Joint Tsunami Commission during the IUGG General Assemblies, which have always been very well participated. They traditionally have the Commission meeting after the Symposium also.  Potential invited speaker names.  Kenji Satake  Emile Okal  Eddie Bernard  Nobuo Shuto  Slava Gusyakov |

**Note JP5:**There is a proposal for “**Past Climate Changes, a key for the Future** IAMAS-ICCL. According to the Intergovernmental Panel on Climate Change (IPCC, 2013), without rapid and dramatic reductions in carbon dioxide emissions, the Earth’s climate can warm by a few °C. This change may occur over a few hundred years, accompanied by sea level rising at a rate of as much as a meter, or perhaps more, per century. Such a climate appears to be unprecedented over the last 150 years. This requests therefore to go back in the past history of the Earth looking for the closest analogues. Understanding the nature and mechanisms of past climate changes in general and particularly of the past warm periods and their termination has the potential to provide context and insight into climate and sea-level response to human activities over the industrial period and into the future, as well as the impacts of such climate change on the environment. This symposium invites researchers who investigate the long-term behavior of the climate system and of the environment in the past and how it is projected to change in the future. We encourage both modelers and empirical scientists who focus on different aspects of the climate system to participate.

**IASPEI - S**

| CODE | Title | Conveners | Associations | Description | Comments |
| --- | --- | --- | --- | --- | --- |
| JS1 | Cryoseismology | * Masaki Kanao * Douglas Wiens * Timothy C. Bartholomaus * IAG: M. Scheinert (Germany) | IASPEI  IACS  IAG | In high latitude and elevation regions, the Earth’s glaciers, ice sheets, sea ice, permafrost, and snowpacks are undergoing rapid change. However, our understanding of the processes governing these changes are hindered by a lack of observations with sufficient temporal and spatial resolution, in these generally remote landscapes. Fortunately, many of the cryospheric processes of interest produce ground vibrations. Analysis of these seismic signals can yield insight into the relationship between environmental forcings and the response of ocean - cryosphere - solid earth systems. The properties of these systems, such as mantle rheology or till thickness, can also be inferred from both passive and active studies. Impulsive events with small magnitudes (icequakes) and M = 5 teleseismically detected glacial earthquakes can be generated by calving or basal slip. Continuous study of their time and space variability informs our understanding of climate change.In this joint symposium between IASPEI and IACS on "Cryoseismology," we invite submissions which cover the full gamut of seismology on and regarding the frozen earth. We encourage contributions treating the observation and modeling of seismic signals involving dynamics of ice sheets, sea ice, icebergs and glaciers, as well as changes to the thermal and physical structure of permafrost and snow. |  |
| JS2 | Early Warning Systems for Geohazards | * IASPEI: **Massimiliano Pittore** (Germany) * IASPEI: Aldo Zollo (Italy) * IAG: J. Labrecque (USA) * John Adams (Canada) | IASPEI  IAG  IAVCEI  IAPSO  IAMAS  IAGA  U02 |  |  |
| JS3 | Cascadia Subduction Zone - Tracking the Sea Floor in Motion | * IASPEI: **Yajing Liu** (Canada) * IASPEI: Michael Bostock (Canada) * Other Associations? | IASPEI  IAG  IAGA  IAPSO  IACVEI |  |  |
| JS4 | Seismo – Geodesy | * IASPEI: TakuyaNishimuraIAG: Y. Tanaka (Japan) | IASPEI  IAG |  |  |
| JS5 | Probabilistic & Statistical Approaches in Geosciences | * IASPEI: **Kerry Gallagher** (France) [kerry.gallagher@univ-rennes1.fr](mailto:kerry.gallagher@univ-rennes1.fr) * IAG: N. Sneeuw (Germany) * IAVCEI: Andrew Bell | IASPEI  IAG  IAVCEI  U03 |  |  |
| JS6 | Old data for new knowledge: Preservation and Utilization of Historical data in the Geosciences | * IASPEI: **Josep Batlló Ortiz** (Spain) * IAHS: Alberto Viglione (Austria) [viglione@hydro.tuwien.ac.at](mailto:viglione@hydro.tuwien.ac.at) * IAG: Josef Adam | IASPEI  IAG  IAHS  U04, U07 | Studying a changing world needs long series of data. Moreover, reanalysis of old geophysical/geodetic data in the light of our present knowledge has become an important tool for understanding topics such as solar variability, climatic change, tectonics, earth rotation, and extreme natural events (e.g., magnetic storms, hurricanes, rainfall, floods, earthquakes etc.). Those old data are in analogue form and, many times, are contained in unique documents. Techniques and methodologies for preservation, dissemination and use of such data, as well as for their present scientific use are important topics for advancing of our understanding of the changing Earth and of past extreme events. Different approaches have been devised to deal with different data and problems. Sharing the already large accumulated experience in the different fields covered by the IUGG shall contribute to improve our preservation and dissemination tools, our analysis methods and, ultimately, to further research results. This symposium welcomes contributions on:  (a) Locating, assessing, preserving, and disseminating historical data such as polar motion, time and temperature measurements, magnetograms, seismograms, glacier extent, tide gauge records and many others and  (b) Methodologies and study cases using historical data to advance our understanding of the Earth. |  |

**IAVCEI - V**

| CODE | Title | Conveners | Associations  Commissions | Description | Comments |
| --- | --- | --- | --- | --- | --- |
| JV1 | When magma meets water: understanding the trigger, the dynamics and the deposits to better quantify the associated hazard | * D. Andronico * M. de' Michieli Vitturi | IAVCEI  Others? If not, this can be Association symposium) |  | Need contact info from conveners |
| JV2 | Steaming badly: What did we learn so far about steam-driven eruptions? Processes, deposits, and hazards | * Cristian Montanaro, * Bettina Scheu, * Corentin Caudron, * Shaul Hurwitz | IAVCEI,  Others? If not, this can be Association symposium) | When Japan’s Ontake volcano suddenly erupted in September 2014, it attracted significant attention because of the many fatalities. Because the steam-driven eruption was not preceded by precursory signals it increased the scientific awareness to the significant hazard represented by such phenomena. The violence of steam-driven eruptions depends largely on the explosivity of the fluids driving them, and on the mechanical properties of the host rocks. A wide range of temperatures, pressures and phase distributions, as well as a variety of lithologies characterize the volcanic environments in which these eruptions occur. Consequently, there are a wide range of eruptive styles and products (from small explosions to large PDCs, ballistic showers, and ash plumes). Nevertheless, the processes governing steam-driven eruptions, and the source of energy propelling them are still poorly understood. This session invites contributions from a broad range of disciplines (field-based, geochemistry, geophysics, experiments, and modelling) that summarize our current state of knowledge on steam-driven eruptions and discuss future research and monitoring directions. | Need contact info from conveners |
| JV3 | Magmatic-hydrothermal system and its impact on hazards and resources | * Yan Lavallee, * Jasmin Raymond (INRS), * Willy William Jones (McGill), * Olivier Nadeau (Uni. Ottawa), * Charles Mandeville (USGS), | IAVCEI  Others? If not, this can be Association symposium) |  | Need contact info from conveners  Additional conveners: Betty Scheu (LMU) and/or John Eichelberger (U.Alaska) |
| JV4 | Fluid flow in rocks and magmas | * Anthony Lamur (Liverpool), * Mike Heap (Strasbourg), * Mathieu Colombier (LMU) | IAVCEI  Others? If not, this can be Association symposium) |  | Need contact info from conveners |
| JV5 | Volcano seismology and infrasound monitoring and interpretation | * Jurgen Neuberg, * Jeff Johnson, * David Fee * IASPEI: Läslo EVERS, (KNMI, De Bilt) | IAVCEI, IASPEI |  | Symposium to be looked at in a multi-disciplinary context  Consider more Associations |
| JV6 | Petrological reactions forced by transport and deformation | * Yan Lavallee, * John Wheeler (Liverpool), * Michael Manga (Berkley) | IAVCEI  IASPEI |  |  |
| JV7 | Strain Localisation and seismic processes | * Jo White (Canada), * Lori Kennedy (UBC), * Boris Kauss (Mainz), * Giulio Di Toro (Manchester) * IAG: Jeff Freymueller (USA). | IAVCEI  IASPEI  IAG |  | .Add conveners and emails |
| JV8 | Terrestrial Heat Flow Measurement and Interpretation | * Shaopeng Huang | IAVCEI  IASPEI |  | Add conveners and emails |
| JV9 | Electromagnetic Signals Generated by Volcanic Eruptions/Activity, Fluid Pressure, Earthquakes and Aseismic Fault Slip | * IAGA/IAVCEI: Jacques Zlotnicki, (France) * Malcolm Johnston, * Takeshi Hashimoto | IAVCEI  IAGA  IASPEI | Changes in inter-related crustal stress, deformation, pressure/temperature of electrically conducting fluids and pore pressure in crustal rocks all occur in both volcanic regions and regions of seismic and aseismic fault failure. All these processes generate electric and magnetic (EM) fields. Furthermore, global EM effects are observed in the atmosphere and ionosphere with explosive ash eruptions. While co-eruptive effects and co-seismic fault failure effects in EM fields, deformation, seismicity and geochemistry are readily observed and modeled, the inter-relation between various parameters during periods of volcanic unrest and aseismic activity that are driven by perhaps the same underlying physics is much less clear. This session focuses on bringing together examples of multi-parameter observations during volcanic activity and earthquake rupture (Part 1), non-eruptive volcanic activity (Part 2) and aseismic fault activity (Part 3) in order to identify the dominant but perhaps changing physical processes involved. Knowledge of the non-uniform EM tomography of volcanoes and fault systems is a necessary prerequisite for modeling these different processes. | Add conveners and emails |
| JV10 | Recent advances in subaqueous volcanism derived from both ancient and modern volcanic successions | * James White, * Karin Orth, * Adam Soule, * Evi Nomikou, * Steffen Kutterolf, * Rebecca Carey | IAVCEI  IAPSO |  | Add conveners and emails |
| JV11 | Atmospheric/Environmental Impacts of reactive volcanic plumes, Volcanic halogens and their impacts, Atmospheric chemistry impacts of volcanic plumes | * Tjarda Roberts, CNRS | IAVCEI  IAMAS |  | Add conveners and emails  It would be exciting to include a session that emphasizes the role of non-sulfur emissions in addition to sulfur that has been the most studied to date, and emphasizing plume reactivity as well as its dispersion in the atmosphere, given the ongoing research on this topic (related to gases, aerosol, atmospheric chemistry, ash). |
| JV12 | Advances in Observations and Modeling of Volcanic Clouds and Plumes | * Simon Carn, MTU * Larry Mastin, USGS * Dave Schneider, USGS | IAVCEI  IAMAS |  | Add conveners and emails |
| JV13 | Tephra hazard modelling for operational use: challenges, successes and new frontiers | * Andrew Tupper (Australia) * Sara Barsotti (Icelandic) | IAVCEI  IAMAS |  | Add conveners and emails |
| JV14 | Glaciovolcanism as a paleoclimate proxy |  | IAVCEI  IACS | This session invites contributions that focus on methods for and examples of extracting paleoclimate records from volcanic sequences formed by interactions with ice on planets. Increasingly scientists who model past climates on Earth and on Mars need data to test their models for the timing, extent and thickness of now-extinct bodies of ice. Deposits formed during interactions between volcanoes and glaciers are one of the few records that can document the exact location of past glaciers, are generally amenable to geochronologic studies, and are relatively resist to erosion by subsequent processes. While the study of glaciovolcanic deposits has been ongoing for several decades, new studies are increasingly extracting more detail information about past ice extents and even paleohydrology. We invite contributions from field and laboratory studies whose foci are extraction of paleoenvironmental data from glaciovolcanic deposits. | Confirm IACS participation  Add conveners and emails |