

GDAP Panel Reports for the 31th GEWEX SSG Meeting 2019

Full Panel Name (Acronym) : GEWEX Data and Analysis Panel (GDAP)
Reporting Period : 01 January - 31 December 2018
Starting Date : 2018
End Date (where appropriate) : NA
URL : <https://www.gewex.org/panels/gewex-data-and-analysis-panel/>

Membership

Chair(s) and Term Dates : Rémy Roca (2016 - Present)
Tristan L'Ecuyer (2016 - Present)
Members and Term Dates : Claudia Stubenrauch (2007 - 2018)
Hirohiko Masunaga (2010 - Present)
Andrew Heldinger (2011 - Present)
Tianjun Zhou (2011- Present)
Wouter Dorigo (2013 - Present)
Chris Kummerow (2014 - Present)
Seiji Kato (2017 - Present)
Isable Trigo (2017 - Present)
Eui-Seok Chung (2019-present)

Panel Objectives, Goals and Accomplishments during Reporting Period

Overall Panel Objective(s)

- Assess the current state of the observational capability to document the global water and energy cycle elements with emphasis on the consistency and the GEWEX science questions fitness for purpose with a climate driven focus and emphasis on satellite based datasets. Sponsor ground based references networks. Trigger new international initiative in support of the GEWEX Science questions and the panel activity.

List of Panel Goals

Adjust yearly

- Fine tune the identity and the overall panel objectives. Renew the panel composition. Sponsor assessments. Close unfinished assessments and projects.

List of Key Results

Adjust yearly with respect to goals

- The integrated product has been made available to the public (after a substantial delay). A article for the GEWEX newsletter is about to be submitted.
- One new panel member has been recruited. One old panel members has quit. Panel needs to be renewed substantially.

Other Science Highlights

Not part of the 2-3 major accomplishments

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Panel Activities during Reporting Period

List of Panel Activities and Main Result

- Integrated product: the data have been released. While the final integrated product does not solve all problems, it does constitute GDAP's best effort at synthesizing the diverse products, and thus

represents far more than a simple collection of individual water and energy parameters, albeit perhaps less than a fully consistent set of parameters at all levels. In addition, as is often the case, products evolve continuously and an integrated product evolves with the individual components. Nonetheless, there is currently an 18 year time series available

- Water vapor Assessment phase 2: lead M. Schroder, H Brogniez and B Ho. The second phase of the project has been approved and will continue the successful assessment of various water vapor related datasets. A kick off meeting of the Phase 2 is organized in Spain June 13-15, 2019.
- The Precipitation assessment is on going and now a joint effort with IPWG (lead H Masunaga). A special issue on extreme precipitation is on going at ERL with many submissions in support of the assessment.
- The Cloud assessment is now finished.
- The aerosols assessment has been stopped without any deliverable after more than 10 years in action.

List of New Projects and Activities in Place and Main Objective(s)

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List of New Projects and Activities Being Planned, including Main Objective(s) and Timeline, Lead(s)

ISCCP-NG (2019-2022)

This new project aims at elaborating the a follow up to the ISSCP project. The Earth observing capabilities from geostationary orbit have advanced substantially over recent years. With the launches of Himawari-8 in 2015 and GOES-17 in 2018, the global geostationary constellation is now comprised of sensors with 10 or more channels, viewing the earth at sub-hourly time scales and with resolutions finer than 5 km. With the launch of Meteosat Third Generation (MTG) planned for 2021, the global geostationary constellation will have 10 common spectral channels. There is a clear need to exploit this new Earth observing capability for cloud climatology. However, the scientific needs will vary widely among potential users of current geostationary data sets, and an eventual ISCCP-NG data record, in addition to the programmatic priorities among sponsoring agencies and international partners. The primary goal of the workshop is to define the scientific scope, the technical contents and methods needed for ISCCP-NG as well as to discuss the needed international cooperation to generate, validate, document, and provide the data set to users. A scoping meeting is organized in October 2019.

Land Surface - Atmosphere interactions from global water and energy perspective (2020-2023)

This new activity is aiming at stimulating land -atmosphere interactions dicussions to better understand how global, regional, and local datasets may best be integrated to close land surface energy and water budgets and establish relationships between surface properties, estimated surface fluxes, and the movement of energy. The first activity is centered around a first workshop to be held Q1 2020.

EI Assessment (2019 - 2022). The need for this new assessment has been identified at the WCRP Workshop on imbalance in Toulouse and was endorsed by the panel in December 2018. The identified leaders are B. Meyssignac (CNES, France) and T. Boyer (NOAA, USA).

Science Issues and Collaboration during Reporting Period

Contributions to Developing GEWEX Science and the GEWEX Imperatives.

- a. Data Sets
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- b. Analysis
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- c. Processes

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- d. Modeling
-
- e. Application
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- f. Technology Transfer
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- g. Capacity Building
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List contributions to the GEWEX Science Questions and plans to include these.

- a. Observations and Predictions of Precipitation
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- b. Global Water Resource Systems
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- c. Changes in Extremes
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- d. Water and Energy Cycles
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Other Key Science Questions

List 1 – 3 suggestion that you anticipate your community would want to tackle in the next 5-10 years within the context of a land-atmosphere project

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Contributions to WCRP including Current Grand Challenges

Briefly list any specific areas of your panel's activities in particular to the grand challenges "Extremes" and "Water for the Food Baskets" which is not covered under 2.

- GDAP & GC Extreme meeting on Precipitation extremes, Germany, July 2018 The WCRP Grand Challenge (GC) on Weather and Climate Extremes and the GEWEX Data and Analysis Panel (GDAP) held a joint workshop on "Precipitation Extremes" at Deutscher Wetterdienst (DWD) in Offenbach, Germany from 9-11 July 2018. The workshop objectives were to:
 - Identify the form of a new International Precipitation Working Group (IPWG)/GEWEX Precipitation assessment chapter on extreme precipitation, including the selection of chapter leads and other contributors
 - Finalize a best practice guidance document for the WCRP Extremes GC on data use for assessing precipitation extremes, including the consideration of satellite-based measurements
 - Integrate the efforts of the remote sensing community in the literature on precipitation extremes that will be assessed for the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6)
 The workshop had 23 invited participants, bringing together experts from the communities addressing climate-scale perspectives in extreme precipitation observations to identify gaps and agree on common goals for future work. As part of the groundwork for the meeting, the organizers prepared a range of satellite-based, ground-based, and reanalysis datasets in the same format and on the same grid so that these could be compared and assessed at the workshop. Preliminary investigations performed by participants during the event were promising, highlighting both discrepancies and convergences between datasets.

Cooperation with other WCRP Projects, Outside Bodies and links to applications

e.g. CLIVAR, CliC, SPARC, Future Earth, etc.

- CLIVAR : Earth Energy Imbalance

Workshops and Meetings

List of Workshops and Meetings Held in 2018

Meeting title, dates and location.

- 2018 GDAP & GC Extreme meeting on Precipitation extremes, Germany, July 2018
- 2018 GDAP Meeting November 2018, Lisboa, Portugal
- 2018 WCRP Workshop: the Earth's Energy Imbalance and Its Implications (EEI), November 2018, Toulouse, France
- 2018 UTC PROES Workshop, October 2018, Paris, France

List of Workshops and Meetings Planned in 2019 and 2020

Meeting title, dates and location and anticipated travel support needs.

- 2019 GDAP Meeting to be determined
- 2020:GEWEX Integrated Product Workshop. The workshop brings together expertise in satellite and ground-based Earth observations to better understand how global, regional, and local datasets may best be integrated to close land surface energy and water budgets and establish relationships between surface properties, estimated surface fluxes, and the movement of energy. An overarching goal of the workshop is to establish pathways for integrating the global energy and moisture datasets with observations collected at established field sites to understand mutual interactions between land surface processes, the atmospheric boundary layer, and convection. The workshop will also seek to assess the overall consistency between surface fluxes in the newly released GEWEX Global, 1 degree, 3-hourly Integrated Water and Energy Product as well as identify additional parameters that should be included in the product going forward. Talks are solicited that address all aspects of energy and water cycle consistency both from the global satellite perspective, as well as existing ground based measurement sites such as ARM that can shed additional light on critical processes at a local scale. Talks that combine these satellite and ground-based perspectives or highlight the benefit of adding particular datasets to the Integrated product for new process insight are especially welcomed.
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- Venue: Universidad de Castilla - La Mancha, Toledo, Spain
- Dates: March 16-18, 2020.
- Organizing Committee:
- Christian Kummerow, Colorado State University, USA
- Francisco Tapiador, U. Castilla - La Mancha, Toledo, Spain
- Isabel Trigo, Instituto Português do Mar e da Atmosfera, Lisbon, Portugal
- Wouter Dorigo, Vienna University of Technology (TU Wien), Austria

Other Meetings Attended On Behalf of GEWEX or Panel in 2018

- Joint WDAC/GCOS meeting in Marakech, Morocco, March 2019.
- WDAC-7 meeting, including the SP discussion March, Geneva,Switzerland, March 2018
- BSRN science conference in Boulder Colorado,USA,July 2018

Publications during Reporting Period

List of Key Publications

- Roca, R., Alexander, L. V., Potter, G., Bador, M., Jucá, R., Contractor, S., Bosilovich, M. G., and Cloché, S.: FROGs: a daily $1^\circ \times 1^\circ$ gridded precipitation database of rain gauge, satellite and reanalysis products, Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-51>, in review, 2019.