



WCRP workshop
“The Earth’s Energy Imbalance and its implications”
13 – 16 November 2018, Toulouse, France

Background:

The Earth’s energy imbalance is a topic developed by the CLIVAR research focus “Consistency between planetary energy balance and ocean heat storage” (CONCEPT-HEAT) that has grown in scope to embrace most of the WCRP core projects (<https://www.wcrp-climate.org/learn-core-projects>), in particular between CLIVAR (<http://www.clivar.org/>) and GEWEX (<https://www.gewex.org/>). CONCEPT-HEAT has been active for 4 years, and will declare success at the end of 2018, as the activity is expanded to become more WCRP-wide.

Dates:

- **18. May 2018: Abstract submission open**
- **13. July 2018: Abstract submission closed**
- **End of July 2018: Notification of authors**

More information and link to abstract submission can be found here:

<http://www.clivar.org/events/2018-wcrp-workshop-earth%E2%80%99s-energy-imbalance-and-its-implications-eei>

Goals, Objectives and Expected Outcome:

The main objective of the workshop is to initiate a new WCRP-wide activity and to thus strengthen and extend the community on the Earth’s energy imbalance through a community wide discussion on links across all the WCRP Core Projects and relevant activities. The expected outcome is to identify research goals and opportunities focused on the Earth’s energy imbalance, and synthesize the various aspects across WCRP, through:

- Discussion and reporting on how the CONCEPT-HEAT topic could evolve into a WCRP topic, together with research goals and priorities.
- Strengthening future international scientific collaborations with experts concerned with the flow of energy through the climate system, and its implications for climate variability on multiple time scales.
- Developing plans for future assessments of the Earth Energy Imbalance and its variability with the aim of documenting uncertainties, assessing their implications for prediction, and identifying future observational needs.
- Developing a community paper on the Earth energy imbalance, or equivalent (e.g. a special issue).

Workshop specifications:

The workshop will take place over 3.5 days. It is an open event for all experts of related fields; the expected maximum number of participants is about 80 persons. The program is organized under four sessions, which build on oral presentations (invited & abstract submissions) and posters. The first three sessions will additionally contain working topics - organized by solicited working group chairs - aiming to specifically define common future steps to advance in climate science. The work of these groups will contain:

- I. Smaller and separated working group discussions guided by a working group chair
- II. Common panel discussions, with group chairs as panel members, and session chairs as moderators.

More precisely, a set of overarching questions will be provided for each working group discussion (to be developed by the workshop scientific organizing team) to be addressed by split working group discussions. Each working group will be chaired by one expert, who will lead the discussion, and there will be a rapporteur. Working group chairs will build the plenary session aiming to guide consensus of the specific discussion. The last half-day will be reserved for the synthesis session 4 supported by the reporting from the different working group chairs, and informed by the scientific organizing team.

DAY 1 – Session 1	DAY 2 – Session 2	DAY 3 – Session 3	DAY 4 – Session 4
<p>----- Morning -----</p> <ul style="list-style-type: none">• Introduction• Scientific talks: invited• Scientific talks• Poster	<p>----- Morning -----</p> <ul style="list-style-type: none">• Introduction• Scientific talks: invited• Scientific talks• Poster	<p>----- Morning -----</p> <ul style="list-style-type: none">• Introduction• Scientific talks: invited• Scientific talks• Poster	<p>----- Morning -----</p> <ul style="list-style-type: none">• Introduction• Reporting from working groups• Common discussion on future steps (Panel discussion)
<p>----- Afternoon -----</p> <ul style="list-style-type: none">• Working topic I• Panel on working topic I	<p>----- Afternoon -----</p> <ul style="list-style-type: none">• Working topic II• Panel on working topic II	<p>----- Afternoon -----</p> <ul style="list-style-type: none">• Working topic III• Panel on working topic III	<ul style="list-style-type: none">• Closing remarks

[Overview draft on workshop sessions]

The five sessions include:

- Session 1 – Global estimates of the Earth Energy Imbalance
(Working topic I: Improving estimates of the global Earth Energy Imbalance)
- Session 2 - Regional Energy Budgets and Energy Transports
(Working topic II: Global framework for regional water-energy budget constraints)

- Session 3 - Earth energy imbalance evaluation and budget closure for climate models and reanalyses
(Working topic III: Conservation of heat in Earth system models and constraints from the Earth's energy imbalance)
- Session 4 - Wrap-up and way forward

Scientific organization team:

- Karina von Schuckmann, Mercator Ocean, France (local organiser)
 - Remy Roca, LEGOS, France (local organiser)
 - Tristan L'Ecuyer, University of Wisconsin, USA (local organiser)
 - Benoit Meyssignac, LEGOS, France (local organiser)
 - Boram Lee, WCRP, Switzerland
 - Michael Sparrow, WCRP, Switzerland
 - Gerhard Krinner, IGE, France (CliC)
 - Detlef Stammer, University of Hamburg, Germany (CLIVAR SSG)
 - Sonia Seneviratne, ETH, Switzerland (GEWEX SSG) / Jan Polcher (tbc)
 - Graeme Stevens, JPL, USA (GEWEX SSG)
 - Andrea K. Steiner, University of Graz, Austria (SPARC)
 - Kevin Trenberth, NCAR, USA
 - Till Kuhlbrodt, NCAS, University of Reading, UK
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