

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.

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, in particular between CLIVAR and GEWEX.

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. special issue etc.).

Workshop specifications:

This workshop will take place over 3.5 days. It is an open event for all experts of related fields, but expected for the maximum number of participants up to 80.

The program will be organized under five sessions, which will build on oral presentations (invited & abstract submissions) and posters. The first four 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, three overarching questions will be provided for each working group discussion (to be developed by 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 5 supported by the reporting from the different working group chairs, and animated by the scientific organizing team.

DAY 1 – Session1	DAY 2 – Session 2	DAY 3 – Session 3 & 4	DAY 4 – Session 5
<p>----- Morning -----</p> <ul style="list-style-type: none"> • Introduction • Scientific talks: invited • Scientific talks • Poster <p>----- Afternoon -----</p> <ul style="list-style-type: none"> • Working topic I • Panel on working topic I 	<p>----- Morning -----</p> <ul style="list-style-type: none"> • Introduction • Scientific talks: invited • Scientific talks • Poster <p>----- Afternoon -----</p> <ul style="list-style-type: none"> • Scientific talks continued • Working topic II • Panel on working topic II 	<p>----- Morning -----</p> <ul style="list-style-type: none"> • Intro Session 3 • Scientific talks: (invited & abstracts) • Poster • Working topic III & common discussion <p>----- Afternoon -----</p> <ul style="list-style-type: none"> • Intro Session 4 • Scientific talks: (invited & abstracts) • Poster • Working topic IV & Panel 	<p>----- Morning -----</p> <ul style="list-style-type: none"> • Introductions: invited commentary • Reporting from working groups • Common discussion on future steps (Panel discussion) • Closing remarks

[Overview draft on workshop sessions]

The five sessions include:

- Session 1 – Global estimates of the Earth Energy Imbalance
(*Working topic I: Development of framework for global EEI assessment*)
- Session 2 - Estimate EEI locally
(*Working topic II: Global framework for regional Earth energy budget constraints*)
- Session 3 - Importance of the Earth energy imbalance evaluation and budget closure for climate models
(*Working topic III: Improving Earth system models and conservation of energy and water in all components and to fit constraints*)

- Session 4 - Cross WCRP interactions on the Earth's energy imbalance
(*Working topic IV: Development of framework for interactions on the Earth's energy imbalance.*)
- Session 5 - Working Group outcomes and Wrap up

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)
 - A SPARC SSG representative (tbc)
 - Kevin Trenberth, NCAR, USA
 - Till Kuhlbrodt, NCAS, University of Reading, UK
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