

Report to CLIVAR SSG-18

Panel or Working Group: CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI)

1. Contributions to developing CLIVAR science and fit, where appropriate, to the CLIVAR imperatives

Anthropogenic Climate Change

The ET is actively contributing to CMIP5 through the computation of indices based on model simulations (CMIP3 done; CMIP5 once available) and making the results available to the wider community in collaboration with PCMDI. The ET is working with the support of the ClimDEX Project to produce global gridded indices of climate extremes, to update and improve the HadEX indices product, as well as other gridded indices activities. The ET is also working closely with the IDAG on detection and attribution. A review paper on ET indices is being finalized and will be submitted to WIREs in a week or two.

Capacity Development

A principal activity of the ET is maintaining a sustained programme of regional workshops that drive capacity development in less developed regions where both data availability is scarce and/or data accessibility is difficult. The results from the workshops are published in the peer-reviewed literature and will continue to be an important contribution to the IPCC assessments. The ET continues to develop this successful workshop formula, looking at ways to increase regional collaboration and participation in international activities of scientists involved in its capacity development activities.

2. Cooperation with other WCRP projects, outside bodies (e.g IGBP) and links to applications

The Expert Team (ET) interacts closely with other CCI teams on the international coordination of climate monitoring, data rescue and on developing sector specific indices. Through its JCOMM representation, the ET is exploring extending its scope to include marine indices. JCOMM members will prepare a position paper this year on marine indices, variability and extremes that will include the usefulness of developing a selected set of place-based indices, the possibility of extending land-based indices to the ocean (e.g., linking SST to land surface temperature) and it will explore the use of marine data to infer land indices where land observations are missing (e.g., for small islands).

The membership of the ETCCDI has been extended to include a representative from GEWEX, bringing the project's interests in extremes related to precipitation, particularly droughts.

3. Workshops/meetings held

The ETCCDI held its 4th session on 23-25 February 2011 in Victoria, Canada (<http://www.clivar.org/organization/etccdi/etccdi4/etccdi4.php>). Its sponsors renewed the membership and term of the expert team in 2010 and this kick-off meeting provided the setting for an exchange of ideas and to scope a new work plan for the next four years.

4. New activities being planned, including timeline,

Over the next four years of mandate, the ETCCDI will review its core set of indices according to new developments, for example area-based indices (i.e., area above 90th percentile), drought indices, hot/cold spell indices and some newly developed rainy season indices.

A position paper led by JCOMM ETCCDI members on marine indices (variability and extremes) is in preparation over the next year. This will consider the usefulness of a selected set of place-based indices (e.g. develop indices for Giorgi-type regions for the ocean basins), teleconnection patterns/indices, the feasibility of extending land-based indices to the ocean (using ICOADS data), e.g. linking SSTs in coastal areas to land surface temperature and explore the use of marine data to infer land indices where land observations are missing (e.g. for small islands).

A new gridded indices product is being developed, ClimDEX, which builds on the HadEX product. Various datasets including station indices and various gridded data sets will be available by means of a web interface. The product will facilitate CMIP5 model evaluation against observations and detection and attribution studies.

The ETCCDI will provide the wider community with indices calculate from the CMIP5 dataset, working with PCMDI to distribute the results. Work on the calculation of indices from model output includes refining indices where necessary and software developments, and a general description paper on the model indices.

ETCCDI will continue in its organization of regional workshops, emphasizing the win-win situation from the capacity development of regional scientists and the increased access and sharing of data with the international community.

5. Workshops/meetings planned (see ANNEX B also)

Three ETCCDI capacity development indices workshops are planned for 2012:

- 1) Kingston, Jamaica (US funding)
- 2) Casablanca, Morocco (US funding)
- 3) Niamey, Niger (WMO funding)

Funding is requested to support one CLIVAR ETCCDI scientist to lecture per

meeting.

6. Issues for the SSG

CLIVAR members were appointed during SSG-17 (2010) for a 2-year term while CCI renewed the ETCCDI mandate at the same time for 4 years. CCI and JCOMM members have 4-year terms. The ongoing work and the workplan that is being developed since this year's meeting are based on the premise that the ETCCDI has a 4-year mandate.

The ETCCDI mandate began after the Fifteenth session of CCI, held in Antalya, Turkey, 19-24 February 2010.

The ETCCDI requests that the SSG extends the CLIVAR membership terms by another 2 years (to end in 2014) to avoid disruptions to ETCCDI's activities.

Annex B

Proforma for CLIVAR Panel and Working Group requests for SSG approval for meetings

Requests should be made through D/ICPO (Robert.Molinari@noc.soton.ac.uk) against the following headings:

1. Panel or Working Group: ETCCDI
2. Title of meeting or workshop: ETCCDI regional indices workshops
3. Proposed venue:
 - 1) Kingston, Jamaica
 - 2) Casablanca, Morocco
 - 3) Niamey, Niger
4. Proposed dates: TBD, 2012
5. Proposed attendees, including likely number: 20-30 representatives of NHMCs plus lecturers.
6. Rationale, motivation and justification, including: relevance to CLIVAR themes & JSC cross cutting topics and any cross-panel/working group links and interactions involved:

The general goals of the ETCCDI workshops include:

- Derive indices from daily data, especially measures of changes in extremes
- Fill in blank data areas in "global" analysis of climate indices
- Increase confidence in local analyses by placing these analyses in a larger, regional context that includes results from neighbouring stations and countries.
- Increase regional research synergies by sharing insights and improve analyses between neighbouring countries
- Foster greater appreciation for data and data archeology

Specific goals for each workshop include producing a peer-reviewed journal article on analysis of climate change for the giving region, and making available the data and indices in the analysis. The publications contribute to the IPCC assessment reports.

7. Specific objectives and key agenda items

The core of the meeting is the hands-on analysis of national data. The first step in the analysis is basic quality control (QC) involving a variety of graphical and statistical analyses. Participants then assess the

temporal homogeneity of the data. They are then able to use the ETCCDI software to calculate the agreed indices for each station in their country.

8. Anticipated outcomes (deliverables):

The preparation of a peer-reviewed paper about extremes in the region: this requires access to the data after the workshop. Almost all participants allow time series of their indices to be publicly shared. Since some countries do not allow access to the data from their individual sites, releasing indices provides important information on trends and variability in extreme events.

9. Format: 1-week workshop (see section 7).

10. Science Organising Committee (if relevant): ETCCDI

11. Local Organising Committee (if relevant): TBD

12. Proposed funding sources and anticipated funding requested from WCRP:

- 1) Kingston, Jamaica – US funding
- 2) Casablanca, Morocco – US funding
- 3) Niamey, Niger – WMO funding

ETCCDI requests WCRP funding to cover the expenses of at least one CLIVAR/GEWEX representative of ETCCDI to lecture/lead workshop activities.

Travel and 1-week living expenses estimated at 3K USD per workshop (though this will depend on the cost of travel).