

**ET2.1: Joint CCI/CLIVAR/JCOMM Expert Team on Climate Change  
Detection and Indices**  
**(ETCCDI / ET2.1, Réf. CCI-XIV, November 2005)**

**Terms of Reference**

- (a)** To provide international coordination and help organize collaboration on climate change detection and indices relevant to climate change detection;
- (b)** To further develop and publicize indices and indicators of climate variability and change from the surface and sub-surface ocean to the stratosphere;
- (c)** To encourage the comparison of modeled data and observations perhaps via the development of indices appropriate for both sources of information;
- (d)** To coordinate these and other relevant activities the ET chooses to engage in (such as perhaps observing system experiments that help determine where observations are needed for climate change detection) with other appropriate agencies such as GCOS, CBS, CIMO, CAgM, CHy, IPCC, START etc. as well with the joint WCRP JSC/CLIVAR Working Group on Coupled Modelling, the WCRP Observations and Assimilation Panel and regional associations;
- (e)** To explore, document and make recommendations for addressing the needs for capacity building in each region, pertinent to this topic;
- (f)** To submit reports in accordance with timetables established by the OPAG chair and/or Management Group.

<p><b>Dr A.M.G. Klein Tank</b>  <u>CCI co-Lead</u></p> <p>-----</p> <p><b>Dr Francis Zwiers</b>  CLIVAR co-Lead</p>	<p>Royal Netherlands Meteorological Institute  Wilhelminalaan 10  P.O. Box 201  3730 AE De Bilt  Netherlands  Tel: (31-30) 2206911  Fax: (31-30) 2204614  Email: <a href="mailto:Albert.Klein.Tank@knmi.nl">Albert.Klein.Tank@knmi.nl</a></p> <p>-----</p> <p>Canadian Ctr for Climate Modelling and Analysis  Climate Research Division, Environment Canada  c/o University of Victoria  PO Box 1700, STN CSC  Victoria, BC V8W 2Y2  <a href="mailto:Francis.Zwiers@ec.gc.ca">Francis.Zwiers@ec.gc.ca</a>  Phone: (1 250)363-8229  Fax: (1 250)363-8247  Web: <a href="http://www.cccma.bc.ec.gc.ca">http://www.cccma.bc.ec.gc.ca</a></p>
<p><b>Dr Xuebin Zhang</b>  CCI Expert</p>	<p>Environment Canada  Climate Research Branch  4905 Dufferin Street  Downsview, Ontario M3H 5T4  Canada  Tel: (1-416) 739 4713  Fax: (1-416) 739 5700  Email: <a href="mailto:xuebin.zhang@ec.gc.ca">xuebin.zhang@ec.gc.ca</a></p>

<p><b>Dr B. Trewin</b> CCI Expert</p>	<p>Bureau of Meteorology National Climate Centre GPO Box 1289 K Melbourne VIC 3001 Australia Tel: (61-3) 9669 4603 Fax: (61-3) 9669 4678 Email: <a href="mailto:b.trewin@bom.gov.au">b.trewin@bom.gov.au</a></p>
<p><b>Mr Brad Garanganga</b> CCI Expert</p>	<p>Drought Monitoring Centre Harare, Zimbabwe <a href="mailto:garangan@dmc.co.zw">garangan@dmc.co.zw</a></p>
<p><b>Dr Gabi Hegerl</b> CLIVAR Expert</p>	<p>Duke University Nicholas School for the Environment and Earth Sciences Durham, NC 27708-90227 USA Tel: (1-919) 6846167 Fax: (1-919) 684-5833 Email: <a href="mailto:hegerl@duke.edu">hegerl@duke.edu</a></p>
<p><b>Dr Phil Jones</b> CLIVAR Expert</p>	<p>School of Environmental Sciences Climatic Research Unit University Plain Norwich NR4 7TJ UK Tel: (44-1603) 592090 Fax: (44-1603) 507784 Email: <a href="mailto:p.jones@uea.ac.uk">p.jones@uea.ac.uk</a></p>
<p><b>Dr David Karoly</b> CLIVAR Expert</p>	<p>University of Oklahoma School of Meteorology 100 E. Boyd Street Norman, OK 73019 USA Tel: (1-405) 3256446 Fax: (1-405) 3257689 Email: <a href="mailto:dkaroly@ou.edu">dkaroly@ou.edu</a></p>
<p><b>Dr. Elizabeth C. Kent</b> JCOMM Expert</p>	<p>James Rennell Division (254/26), National Oceanography Centre, Southampton, European Way, SOUTHAMPTON, SO14 3ZH, UK Tel(+Voice Mail): +44 (0)23 8059 6646; Fax: +44 (0)23 8059 6400 Email: <a href="mailto:Elizabeth.C.Kent@noc.soton.ac.uk">Elizabeth.C.Kent@noc.soton.ac.uk</a> <a href="http://www.noc.soton.ac.uk/JRD/MET/">http://www.noc.soton.ac.uk/JRD/MET/</a></p>
<p><b>Dr Chris Folland</b> JCOMM Expert</p>	<p>Head of Climate Variability Research Met Office, Hadley Centre, Fitzroy Rd, Exeter, Devon EX1 3PB United Kingdom Email: <a href="mailto:chris.folland@metoffice.gov.uk">chris.folland@metoffice.gov.uk</a> Tel: +44 (0)1392 886646</p>

	<p>Fax: (in UK) 0870 900 5050  (International) +44 (0)113 336 1072  <a href="http://www.metoffice.gov.uk">http://www.metoffice.gov.uk</a>  Fellow of the Met Office  Hon. Professor of Dept of Environmental Sciences,  University of East  Anglia</p>
<p><b>Dr Scott Woodruff</b>  JCOMM Expert</p>	<p>NOAA Earth System Research  Laboratory (R/PSD1)  325 Broadway  Boulder, CO 80305 USA  phone: +1 303-497-6747  fax: +1 303-497-6449  e-mail: <a href="mailto:Scott.D.Woodruff@noaa.gov">Scott.D.Woodruff@noaa.gov</a>  web: <a href="http://icoads.noaa.gov">icoads.noaa.gov</a></p>
<p><b>Dr Val R. Swail</b>  JCOMM Expert</p>	<p>Climate Research Branch  Meteorological Service of Canada  4905 Dufferin Street  DOWNSVIEW, ON M3H 5T4  Canada  Telephone: +1-416 739 4347  Telefax: +1-416 739 5700  E-mail: <a href="mailto:val.swail@ec.gc.ca">val.swail@ec.gc.ca</a></p>