ENSO Diversity Workshop Agenda

February 6 - 8, 2013
UCAR Center Green
Boulder, CO

Wednesday, February 6

8:00 - 8:30 am: Breakfast

Wednesday Morning Session:

8:30 am - 12:30 pm: "Statistical Characterization of ENSO diversity in models and observations"

Questions:

1. What are the major uncertainties in the observational record and reanalysis products that limit our ability to characterize ENSO diversity? How can these uncertainties be reduced?
2. How well do climate models reproduce the "observed" characteristics of ENSO diversity?
3. Do discrete classes of ENSO events emerge from observations and models, or is ENSO diversity better described as a continuum with some interesting extremes?
4. Are oceanic indices sufficient to characterize ENSO diversity, or indices/metrics accounting for the atmospheric state are necessary?

8:30 - 8:40 am: Welcome

8:40 - 9:00 am: Alexey Kaplan "*Indices of El Niño-Southern Oscillation from historical data sets, based on SST measurements: Estimates and their uncertainty*"

9:00 - 9:20 am: Benjamin Giese "*Are there really different types of ENSO? What can be learnt from reanalyses, reconstructions, and the CMIP5 historical runs?*"

9:20 - 9:40 am: Matt Newman "*Modelling an ENSO continuum using multivariate red noise"*

9:40 -10:00 am: Chunzai Wang *El Niño Modoki I and II Classified by Different Impacts on Rainfall in Southern China, Typhoon Landfall Activity and the Indian Ocean Dipole*

10:00 - 10:10 am: Poster presentations

10:10 - 10:40 am: Break with poster viewing

10:40 - 11:00 am: Kris Karnauskas "*El Niño typology and trends: Insights from three decades of weekly SST observations*"

11:00 - 11:20 am: Andrew Chiodi "*OLR-based El Niño and La Niña indices for impacts on global seasonal weather anomalies*"

11:20 - 11:40 am: Kao Hsun-Ying "*Zonal surface currents and the evolution of the two types of El Niño*"

11:40 am - 12:00 pm: Gil Compo "*Removing ENSO-related variations from the climate record*"

12:00 - 12:30 pm: Discussion

Posters:

Autumn Kidwell "*Examining El Niño diversity in recent warm-pool migration events*"

Benjamin Hamlington "*Improving sea level reconstructions using non-sea level measurements*"

Jin-Yi Yu "*Indices for the two types of ENSO*"

12:30 - 1:30 pm: Lunch

Wednesday Afternoon Session:

1:30 - 5:30 pm: "Dynamical processes associated with the different flavors (relative role of the different oceanic feedbacks and surface atmospheric forcing"

Questions:

1. Are different ENSO flavors/extremes characterized by different leading dynamical processes? What is the relative importance of the various oceanic feedbacks and surface fluxes, and what is the role of nonlinear processes?
2. Do climate models (CMIP3/CMIP5) capture the differences in dynamics suggested by observations, and do they agree among themselves? How can the models be improved?
3. Are simple models (either statistical, or dynamical conceptual and intermediate models) able to capture the full diversity of obs and GCMs? If so, how can these be used to improve the more complex models? Can they help us understand whether ENSO characteristics may vary as a continuum or be characterized by "discrete modes"?
4. How does understanding of the dynamics of ENSO diversity inform assessments of the influence of climate change on ENSO?

1:30 - 1:50 pm: Fei-Fei Jin "*El Niño multiplicity and sensitivity*"

1:50 - 2:10 pm: Jin-Yi Yu "*Central-Pacific El Niño: Dynamics, climate impacts, and the cause of its recent emergence*"

2:10 - 2:30 pm: Boris Dewitte "*The thermocline feedback in the western-central equatorial Pacific: A key player for explaining ENSO diversity*"

2:30 - 2:50 pm: Mike McPhaden "*A 21st Century shift in ENSO Properties*"

2:50 - 3:20 pm: Break and poster viewing

3:20 - 3:40 pm: Andrew Wittenberg "*ENSO diversity in the GFDL CM2.1 coupled GCM*"

3:40 - 4:00 pm: Ken Takahashi "*Strong and moderate El Niño regimes in the GFDL-CM2.1 model*"

4:00 - 4:20 pm: Antonietta Capotondi "*Dynamics of El Niño flavors in the NCAR CCSM4*"

4:20 - 4:40 pm: Maria Gehne "*On the relation between the ENSO cycle, its irregularity and decadal variation"*

4:40 - 5:00 pm: Jyothi Nattala "*El Niño and the Southern Oscillation in parameterized and super-parameterized coupled general circulation models*"

5:00 - 5:30 pm: Discussion

Posters:

Maria Gehne "*On the relation between the ENSO cycle, its irregularity and decadal variation"*

5:30 pm: Reception

Thursday, February 7

8:00 - 8:30 am: Breakfast

Thursday Morning Session:

8:30 am - 12:30 pm: "Predictability and Prediction" (including precursors)

Questions:

1. Are there specific precursors associated with different ENSO types? If so, are they associated with extra-tropical or inter-basin influences, or do they originate within the tropical Pacific? What are the relative roles of the Northern and Southern Hemispheres?
2. Are existing ENSO forecast systems able to realistically simulate these precursors? How can the forecasts be improved?
3. Do certain ENSO flavors/extremes offer significantly enhanced or degraded predictability? If so, are these predictability variations evident within existing forecast systems, e.g. via retrospective forecast skill over the instrumental epoch?

8:30 - 8:50 am: Emanuele Di Lorenzo "*ENSO and the Meridional Mode: a null hypothesis for Pacific decadal climate*"

8:50 - 9:10 am: Bruce Anderson "*Influence of extra-tropical sea-level pressure variations on the longitudinal location of ENSO events*"

9:10 - 9:30 am: Sang-Wook Yeh "*Changes in the ENSO spatial structure in relation to the PDO in the CMIP5"*

9:30 - 9:50 am: Kathy Pegion "*The seasonal footprinting mechanism in CFSv2: Simulation and impacts on ENSO predictions"*

9:50 - 10:10 am: Honghai Zhang "*The South Pacific Meridional Mode: A mechanism for ENSO-like variability"*

10:10 - 10:15 am: Poster presentation

10:15 - 10:30 am: Break and poster viewing

10:30 - 10:50 am: Alexey Fedorov "*Westerly wind bursts revisited: Implications for Central Pacific, eastern Pacific, and extreme El Niño events*"

10:50 - 11:10 am: Takeshi Izumo "*Influence of Indian Ocean Dipole and Pacific recharge on following year's El Niño: Interdecadal robustness"*

11:10 - 11:30 am: Ben Kirtman "*ENSO diversity in the US National Multi-Model Ensemble (NMME) Prediction System*"

11:30 - 11:50 am: Yan Xue "*Prediction skill and predictability of two flavors of ENSO in the NCEP Climate Forecast System Version 2"*

11:50 - 12:10 am: Ernesto Munoz "*Tropical Atlantic Variability leading tropical Pacific sea level pressure anomalies in CCSM4"*

12:10 - 12:30 pm: Discussion

12:30 - 1:30 pm: Lunch

Posters:

Shineng Hu "*The effect of westerly wind bursts on ENSO: Why each El Niño event is unique?"*

Andrew Chiodi "*Pre- and Post-1997/1998 Westerly Wind Events and Equatorial Pacific Cold Tongue Warming"*

Thursday Afternoon Session:

1:30 - 5:30 pm: "Teleconnections of the different flavors and impacts"

Questions:

1. Do atmospheric teleconnections significantly differ among various ENSO flavors/extremes? If so, what dynamical processes are responsible?
2. What ENSO flavors/extremes have the greatest impacts on various stakeholders?
3. How are these ENSO teleconnections and impacts influenced by changing radiative forcings, natural or anthropogenic?

1:30 - 1:50 pm: Prashant Sardeshmukh "*Does "ENSO diversity" remotely matter?*"

1:50 - 2:10 pm: Sang-Ik Shin "*ENSO flavors and their global impacts*"

2:10 - 2:30 pm: Martin Hoerling "*Teleconnection sensitivity to El Niño diversity*"

2:30 - 2:50 pm: Margaret Hurwitz "*Extra-tropical atmospheric response to two types of El Niño events*"

2:50 - 3:10 pm: Eriko Nishimoto "*Intraseasonal to interannual variability in the tropical tropopause temperature and its relationship with convective activity*"

3:10 - 3:30 pm: Break

3:30 - 3:50 pm: Sang-Ki Lee "*Trans-Niño and Springtime Tornado Outbreaks in the U.S*"

3:50 - 4:10 pm: Speaker TBD

4:10 - 4:30 pm: Simon Grainger "*Assessment and Projected Changes of ENSO-related Interannual Variability of Southern Hemisphere Atmospheric Circulation in CMIP5 Models*"

4:30 - 4:50 pm: Aaron Wilson "*Evaluating the Impacts of ENSO Flavors on the ENSO-SAM Teleconnection to Antarctica Using CAM 4*"

4:50 - 5:10 pm: Michelle Gierach "*Biophysical response to the 1997-98 and 2009-10 El Niño events in the equatorial Pacific Ocean*"

5:10 - 5:30 pm: Mark Ohman "*Biological evidence for an anomalous California Nino of 2009/10*"

5:30 - 6:00 pm: Discussion

Posters:

Andrew Wittenberg "*Variation of ENSO teleconnections*"

Friday, February 8

8:00 - 8:30 am: Breakfast

Friday Morning Session:

8:30 am - 12:30 pm: "Insight from paleoclimates"

Questions:

1. What are the major sources of uncertainty in the paleo proxies and reconstructions that limit our ability to characterize past ENSO diversity?
2. How can paleo proxies inform reconstructions of ENSO diversity during the instrumental epoch?
3. Do discrete classes of ENSO events emerge from paleo reconstructions and paleo simulations?

8:30 - 9:00 am: Continuing discussion from previous day

9:00 - 9:30 am: Julien Emile-Geay "*Paleoclimate constraints on ENSO statistics*"

9:30 - 9:50 am: Emanuele Di Lorenzo (for Kim Cobb)

9:50 - 10:10 am: Diane Thompson "*Reconciling coral-based reconstructions of tropical Pacific SST and salinity*"

10:10 - 10:30 am: Break

10:30 - 10:50 am: Christina Karamperidou "*The response of ENSO 'flavors' to orbital forcing: Implications for interpreting proxies*"

10:50 - 11:10 am: Jinbao Li "*El Niño Dynamics During the Past Seven Centuries*"

11:10 - 11:30 am: Toby Ault "*Characterizing decadal to centennial variability of the last millennium*"

11:30 am - 12:30 pm: Discussion

Posters:

Diane Thompson: "*Tropical climate trends inferred from coral pseudoproxy modeling*"

12:30 - 1:30 pm: Lunch

1:30 - 3:30 pm: Working Group meeting (*working group members only*)