WGSIP

- Seasonal/CHFP
  - GLACE-2
  - Strat-HFP
  - Sea-Ice HFP
  - US NMME
- Decadal
- Sub-Seasonal
Participating Groups

1. EU ENSEMBLES (Linked Server)
2. UKMET (CIMA)
3. APCC (Linked Server)
4. NOAA-NCEP
5. NOAA-GFDL
6. NASA-GMAO (Jan 2012)
7. COLA-UMiami-NCAR (September 2011)
8. BMRC
9. JMA (CIMA)
10. CCCma (CIMA)
11. CPTEC
12. IRI

Completed
Hindcasts Done, Data Transfer Pending

Hindcasts Nearly Completed
Black – Status Pending
http://chfps.cima.fcen.uba.ar/

CIMA CHFP Data Server
CHFP: Three major topics and (now) three experiments:

Land Surface: the GLACE experiment:
  Soil moisture experiments in seasonal mode
  Led by R Koster

Stratosphere: Stratospheric Historical Forecast Project
  High Top – Low Top hindcasts
  Led by A Scaife

Sea Ice: Ice Historical Forecast Project
  Case studies with/without initial sea-ice data (2007/1996)
  Led by D Peterson
GLACE-2: An international project aimed at quantifying soil moisture impacts on prediction skill

(Koster et al. 2011, in press)
1. The individual models vary in their ability to extract forecast skill from land initialization (not shown). In general, -- Low skill for precipitation -- Moderate skill (in places) for temperature, even out to two months.

2. Land initialization impacts on skill increase dramatically when conditioned on the size of the initial local soil moisture anomaly.

If you know the local soil moisture anomaly at time 0 is large, you can expect (in places) that initializing the land correctly will improve your temperature forecast significantly, and your precipitation forecast slightly, even out to 2 months.

3. The results highlight the potential usefulness of improved observational networks for prediction.
Ice HFP – experiment & first results

Initial focus on 1996 and 2007

Six month forecasts from May, August and November

With Sea-Ice initialised and evolving

Without Sea-Ice initialised and evolving

Data NOT to be on the server
## Participants and Status

<table>
<thead>
<tr>
<th>Institute</th>
<th>Model</th>
<th>Status</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Met Office HC</td>
<td>HadGEM</td>
<td>DONE</td>
<td><a href="mailto:drew.peterson@metoffice.gov.uk">drew.peterson@metoffice.gov.uk</a></td>
</tr>
<tr>
<td>Meteo France</td>
<td>Arpege + OPA?</td>
<td>DONE</td>
<td><a href="mailto:matthieu.chevallier@meteo.fr">matthieu.chevallier@meteo.fr</a></td>
</tr>
<tr>
<td>ECMWF</td>
<td>IFS+NEMO</td>
<td>?</td>
<td><a href="mailto:Linus.Magnusson@ecmwf.int">Linus.Magnusson@ecmwf.int</a></td>
</tr>
<tr>
<td>Max Planck Inst</td>
<td>ECHAM5 + MPIOM</td>
<td>DONE</td>
<td><a href="mailto:dirk.notz@zmaw.de">dirk.notz@zmaw.de</a></td>
</tr>
</tbody>
</table>

Other groups to take part? contact drew.peterson@metoffice.gov.uk
Stratospheric extension of the CHFP

Hi Top Hindcasts

- Parallel to WGSIP-CHFP
- Extended models
- Initialising extra atmosphere, better represented stratosphere

 Integrations

- 4 month lead times (1\textsuperscript{st} November and 1\textsuperscript{st} May start dates)
- 2 seasons (DJF and JJA)
- Case study years: 1989 onwards
- At least 6 members per year, preferably more
## Participants and Status

<table>
<thead>
<tr>
<th>Institute</th>
<th>Model</th>
<th>Resolution</th>
<th>Reference</th>
<th>Status</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Met Office HC</td>
<td>HadGEM</td>
<td>N96L85, 85km</td>
<td>Martin et al 2006, J. Clim., 19, 1217-1301</td>
<td>DONE</td>
<td><a href="mailto:Adam.scaife@metoffice.gov.uk">Adam.scaife@metoffice.gov.uk</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N96L38, 40km</td>
<td></td>
<td>IN SERVER</td>
<td></td>
</tr>
<tr>
<td>Meteo France</td>
<td>Arpege 4.4 + OPA</td>
<td>L91, 0.01hPa</td>
<td>Gueremy et al, 2005, Tellus, 57A, p308-319</td>
<td>DONE</td>
<td><a href="mailto:Michel.deque@meteo.fr">Michel.deque@meteo.fr</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>L31, 10hPa</td>
<td></td>
<td>IN SERVER</td>
<td><a href="mailto:jean.philippe.piedelievre@meteo.fr">jean.philippe.piedelievre@meteo.fr</a></td>
</tr>
<tr>
<td>ECMWF</td>
<td>IFS</td>
<td>L91, 0.01hPa</td>
<td></td>
<td>DONE</td>
<td><a href="mailto:t.stockdale@ecmwf.int">t.stockdale@ecmwf.int</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>L62, 5hPa</td>
<td></td>
<td>IN SERVER</td>
<td></td>
</tr>
<tr>
<td>CCCMA</td>
<td>CMAM</td>
<td>T63L71,~100km</td>
<td>Scinocca et al 2008, ACP, 8, 7055-7074</td>
<td>DONE</td>
<td><a href="mailto:John.Scinocca@ac.gc.ca">John.Scinocca@ac.gc.ca</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>T63L41,~31km</td>
<td></td>
<td>IN SERVER</td>
<td><a href="mailto:George.Boer@ec.gc.ca">George.Boer@ec.gc.ca</a></td>
</tr>
<tr>
<td>NCEP</td>
<td>CFS v1</td>
<td>L64, 0.2hPa</td>
<td>Saha et al, J.Clim., vol.19, no.15, p3483-3517</td>
<td>DONE</td>
<td><a href="mailto:Amy.Butler@noaa.gov">Amy.Butler@noaa.gov</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IN SERVER</td>
<td><a href="mailto:Arun.Kumar@noaa.gov">Arun.Kumar@noaa.gov</a></td>
</tr>
<tr>
<td>CPTEC</td>
<td>CPTEC</td>
<td></td>
<td></td>
<td></td>
<td><a href="mailto:pnobre@cptec.inpe.br">pnobre@cptec.inpe.br</a></td>
</tr>
<tr>
<td>IFM-GEOMAR</td>
<td>ECHAM5</td>
<td>T63L31,10hPa</td>
<td>Roeckner et al 2003, MPI report No. 349, 127pp</td>
<td></td>
<td><a href="mailto:nkeenlyside@ifm-geomar.de">nkeenlyside@ifm-geomar.de</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>T63L47,0.01hPa</td>
<td>Manzini et al 2006, J.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# US National Multi-Model Ensemble Hindcasts and Real-time Prediction

<table>
<thead>
<tr>
<th>Model</th>
<th>Period</th>
<th>Members</th>
<th>Leads</th>
<th>Arrangement of Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFSv1</td>
<td>1981-2009</td>
<td>15</td>
<td>0-8 months</td>
<td>1st 0Z +/-2days, 21st 0Z +/-2d, 11th 0Z +/-2d</td>
</tr>
<tr>
<td>CFSv2</td>
<td>1982-2009</td>
<td>24(28)</td>
<td>0-9</td>
<td>4 members (0, 6, 12, 18Z) every 5th day</td>
</tr>
<tr>
<td>GFDL-CM2.2</td>
<td>1982-2010</td>
<td>10</td>
<td>0-11</td>
<td>All 1st of the month 0Z</td>
</tr>
<tr>
<td>IRI-Echam4-f</td>
<td>1982-2010</td>
<td>12</td>
<td>0-7</td>
<td>All 1st of the month</td>
</tr>
<tr>
<td>IRI-Echam4-a</td>
<td>1982-2010</td>
<td>12</td>
<td>0-7</td>
<td>All 1st of the month</td>
</tr>
<tr>
<td>CCSM3.0</td>
<td>1982-2010</td>
<td>6</td>
<td>0-11</td>
<td>All 1st of the month</td>
</tr>
</tbody>
</table>


**IRI to Host Hindcasts and Real-Time Forecasts (Minimal Data Set)**

**NASA to Join September 8th**
Sea Surface Temperature

Verification observation:
- SST OISST-QD
- 1982-2009
Decadal Predictions

CMIP5 Protocol

- CMIP-WGCM-WGSIP group to oversee this framework
- WGSIP is active participant in upcoming CLIVAR AIP workshop on ocean initialization for decadal predictions
Active meeting and workshop schedule

- OceanObs09 (Venice, Sept 09)
- 8th Workshop on Decadal Climate Variability (Maryland, Oct 09)
- Earth-System Initialization for Decadal Prediction (deBilt, Nov 09)
- Predicting Climate of the Coming Decades (Miami, Jan 10)
- WGSIP-13 (Buenos Aires, July 10)
- Conference on Decadal Predictability (Triest, Aug, 10)
- Workshop on Decadal Variability, Predictability and Predictions: understanding the role of the oceans (NCAR, Sept 10)
- WGCM-14 (Exeter, Oct 10)
- Seasonal to Multi-decadal Predictability of the Polar Climate (Bergen, Oct 10)
- IPCC 1st LA Meeting (Kunming, Nov 10)
- Making sense of the multi-model prediction experiments from CMIP5 (Aspen, June 11)
- IPCC 2nd LA Meeting (Brest, July 11)
- WGSIP-14 (Trieste, Sept 11)
Decadal Forecast Exchange

We are exchanging very basic quantities:

Global Annual Mean Temperature

One file for each year, each member

Exchanged once per year around November

Equal ownership

- **Hodley: 2012–2016**
- **SMHI: 2012–2016**
- **MRI: 2012–2016**

- **MIROC5: 2012–2016**
- **Average forecast**
- **Average – AR4**
Links across WMO

TIGGE Representation (P. Silva Dias) at WGSIP-13
Several Area of Potential Collaboration Identified

• Ocean-atmosphere coupling impact sub-seasonal forecast skill
• Role of resolution on forecast skill
• Scale interactions
• Ensemble techniques