GLACE-2

The 2nd phase of the Global Land-Atmosphere Coupling Experiment

Progress Report: April, 2009

Agenda:

-- Go over current progress amongst different groups and here at GLACE-2 Central

Updated Participant List

Group/Model	# models	Points of Contact
1. NASA/GSFC (USA): GMAO seasonal forecast system (old and new)	2	R. Koster, T. Yamada
2. COLA (USA): COLA GCM, NCAR/CAM GCM	2	P. Dirmeyer, Z. Guo
3. Princeton (USA): NCEP GCM	1	E. Wood, L. Luo
4. IACS (Switzerland): ECHAM GCM	1	S. Seneviratne, A. Roesch
5. KNMI (Netherlands): ECMWF	1	B. van den Hurk
6. ECMWF	1	G. Balsamo, F. Doblas-Reyes
7. GFDL (USA): GFDL system	1	T. Gordon
8. U. Gothenburg (Sweden): NCAR	1	J.-H. Jeong
9. CCSR/NIES/FRCGC (Japan): CCSR GCM	1	T. Yamada
10. FSU/COAPS	1	M. Boisserie
	12 models	

Fcst. Model	*Points of Contact*	*Progress to Date*
COLA GCM ; NCAR/ CAM GCM, via COLA	Paul Dirmeyer, Zhichang Guo	-- Forcing data interpolated to proper resolution; offline land simulations proceeding. -- *Completed 10 years of COLA runs – Discussed during last telecon* -- NCAR runs being set up.
NCAR (USA, via U. Gothenburg, Sweden)	Jee-Hoon Jeong	-- *Baseline set of simulations for the period 1986-1995 is finished (Series 1 and Series 2).* -- Performing additional forecasts with modified initialization strategy. *-- Still haven't clarified issues with submission. Results are still indeterminate.*
GEOS5 GCM; NSIPP GCM (NASA/GSFC)	Randal Koster, Tomohito Yamada	-- Simulated 50 years of land surface conditions for initialization -- Ran GEOS5 GCM 10 years to generate climatology -- July 1 forecasts finished – *Discussed during last telecon*

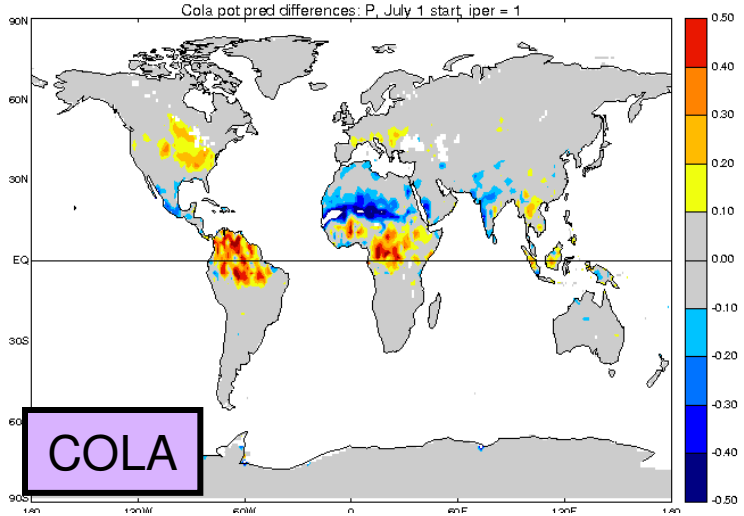
Fcst Model	*Points of Contact*	*Progress to Date*
GFDL (USA)	Tony Gordon	-- AMIP style control run performed for atmospheric initial conditions and for scaling of land variables. -- 10 years (1st of each of month, 10 ensemble members) completed, for both Series 1 and Series 2. -- All Series 1 runs done; scaled and unscaled; Series 2 done two ways: with pdf, and with average. -- Results are interesting: they show potential limitation induced by water-holding capacity.

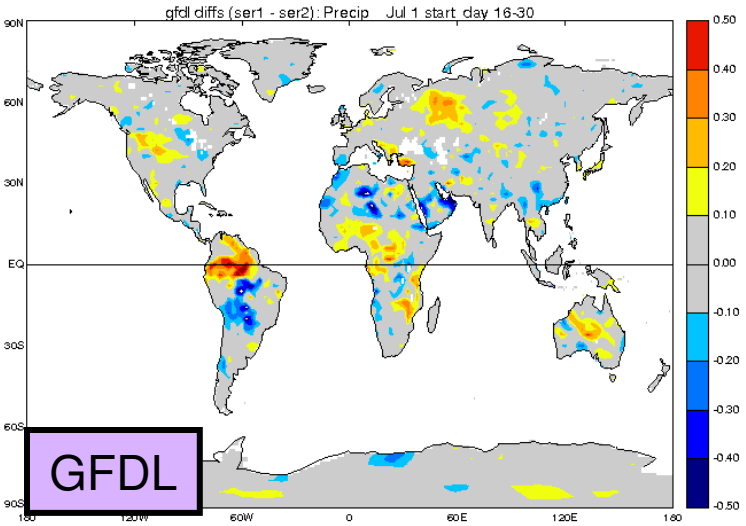
Fcst. Model	*Points of Contact*	*Progress to Date*
KNMI (ECMWF uncoupled model	Bart van den Hurk, Helio Camargo, Gianpaolo Balsamo	-- GSWP2 forcings regridded to their GCM's resolution. -- 10-yr climatology run with the GCM, to allow for soil moisture scaling. -- Land model incorporated into LIS, for efficient offline simulation. *-- Forecasts are complete(?); we still need to download results. Some results discussed during last telecon.*
ECMWF Coupled model	Gianpaulo Balsamo, Francisco Doblas-Reyes	*-- Forecasts are complete; we still need to download results.*
NCEP (via Princeton, USA)	Eric Wood, Lifeng Luo	-- Simulated 50 years of land surface conditions for initialization. -- Finished experiments (First-of-month starts).

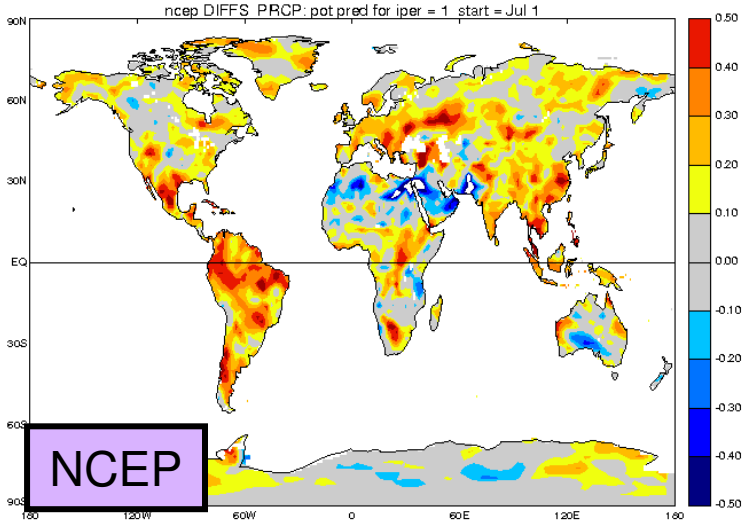
Fcst Model	*Points of Contact*	*Progress to Date*
ECHAM (via IACS, Switzerland)	Sonia Seneviratne, Roesch Andreas	-- Series 2 simulations for GSWP2 period are finished for most start dates in 10-year period.
CCSR/NIES/ FRCGC (Japan)	Tomohito Yamada	-- Simulated 50 years of land surface conditions for initialization.
FSU/COAPS	Marie Boisserie	(New to project) Some runs done.

Joint analysis of predictability / skill in current set of model submissions…

“Potential predictability”: Precipitation, Days 16-30 (isolated land contribution)

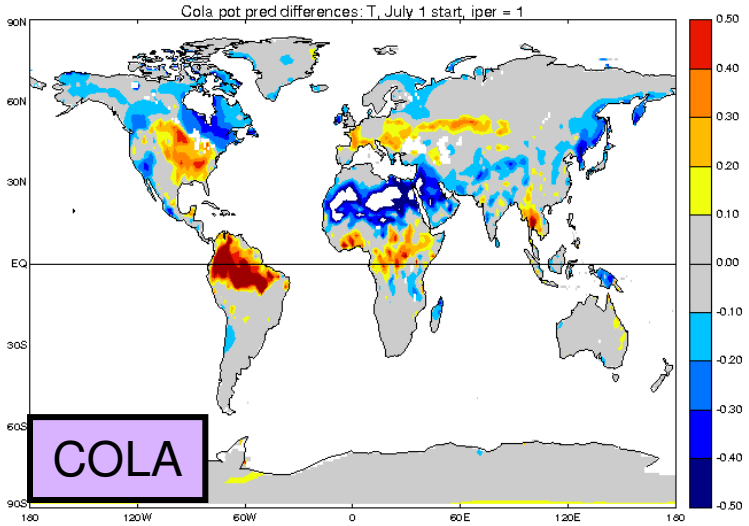


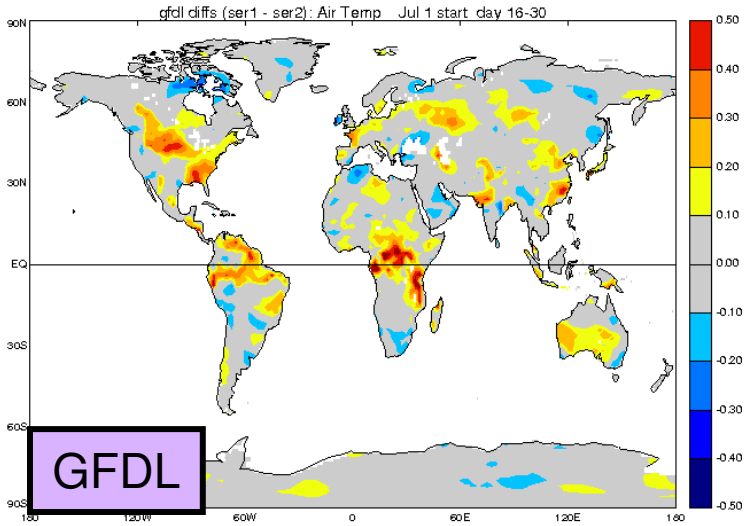


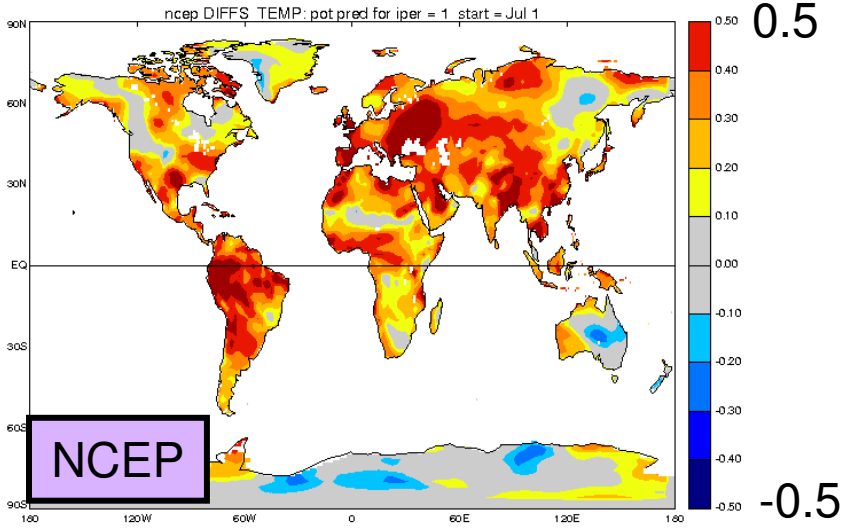


preliminary analyses: Apr.2 09

“Potential predictability”: Air temperature, Days 16-30 (isolated land contribution)

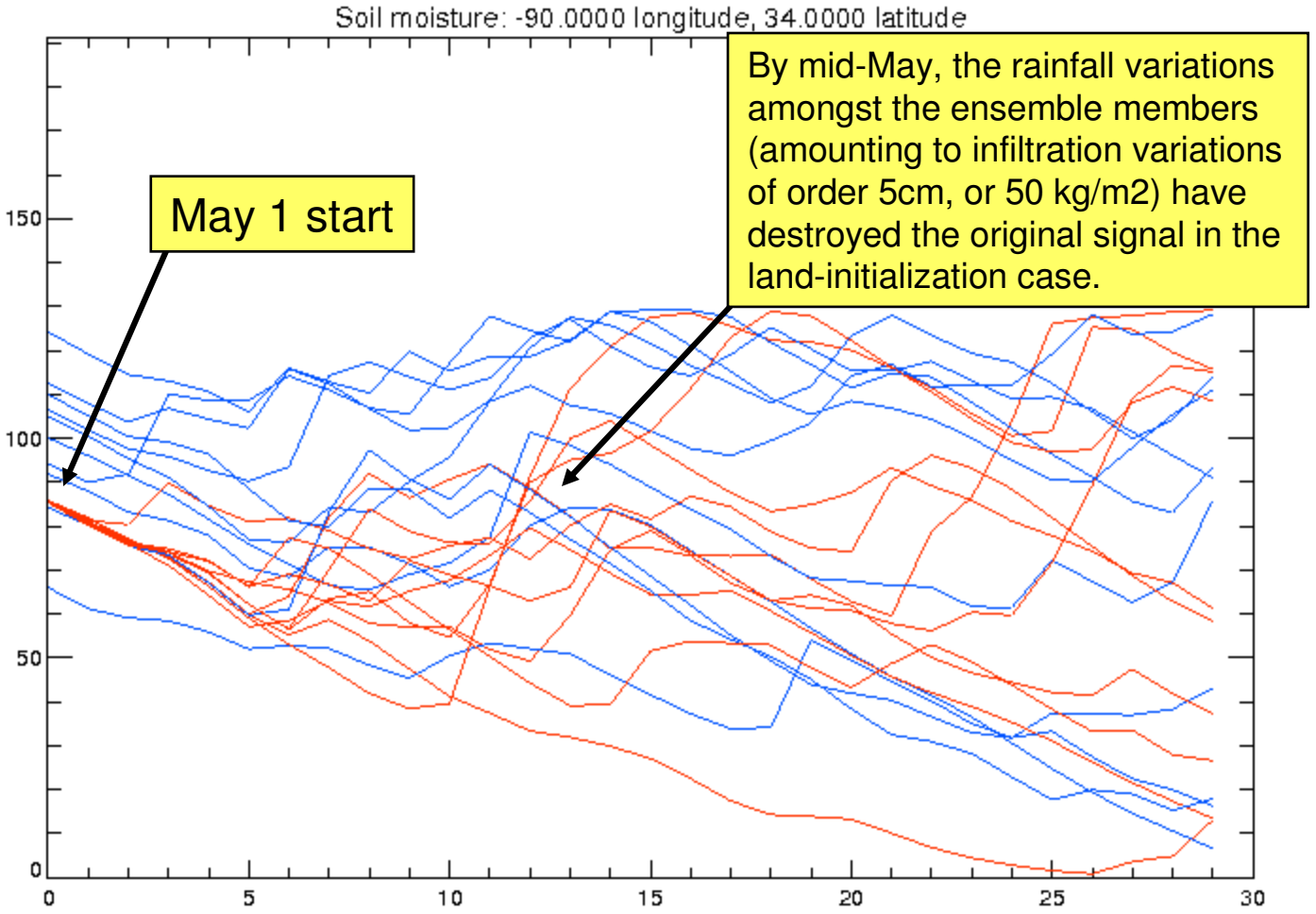






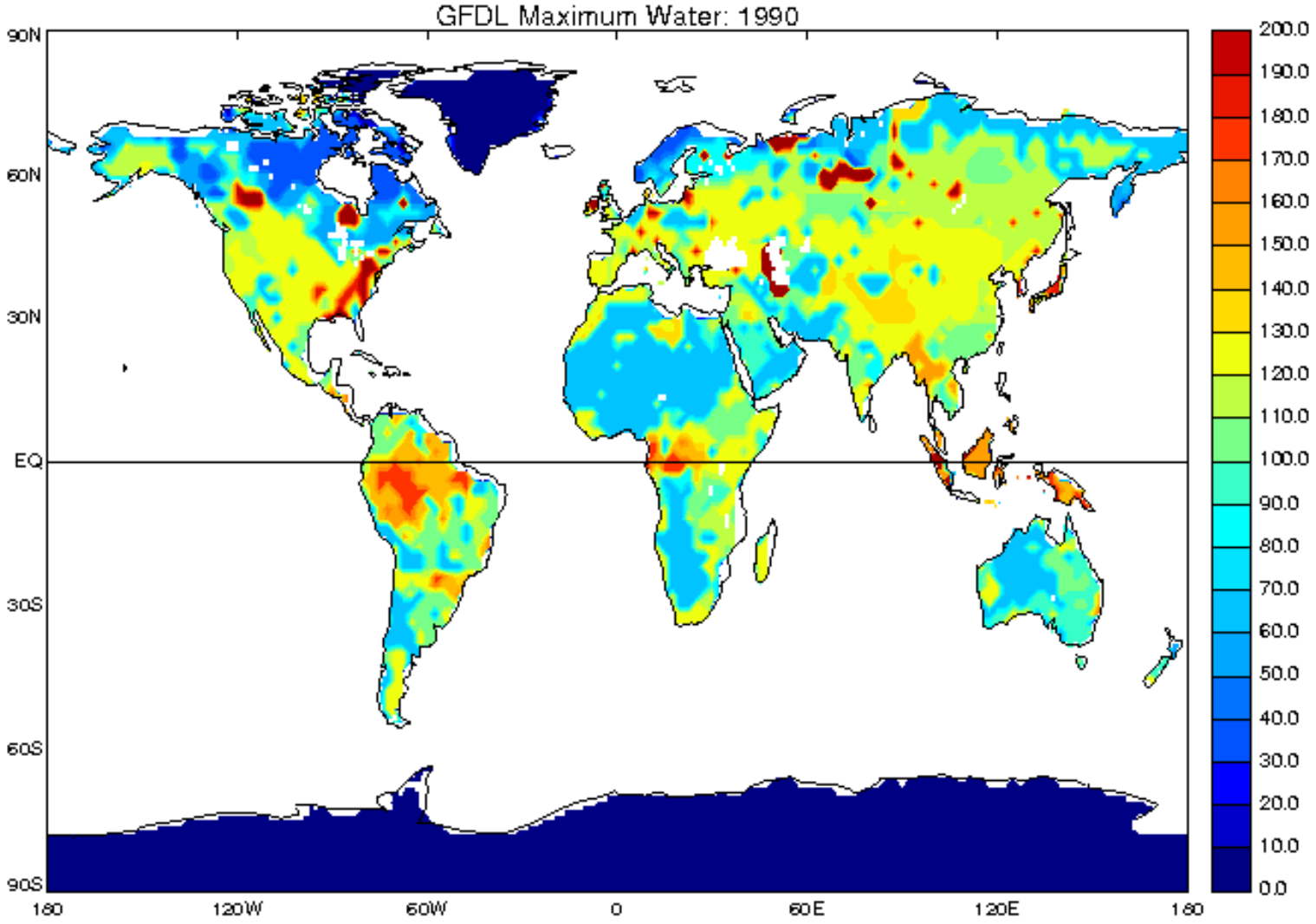
preliminary analyses: Apr.2 09

GFDL: Red: Land moisture initialized to realistic (scaled) value
Blue: Initial land moisture taken from PDF

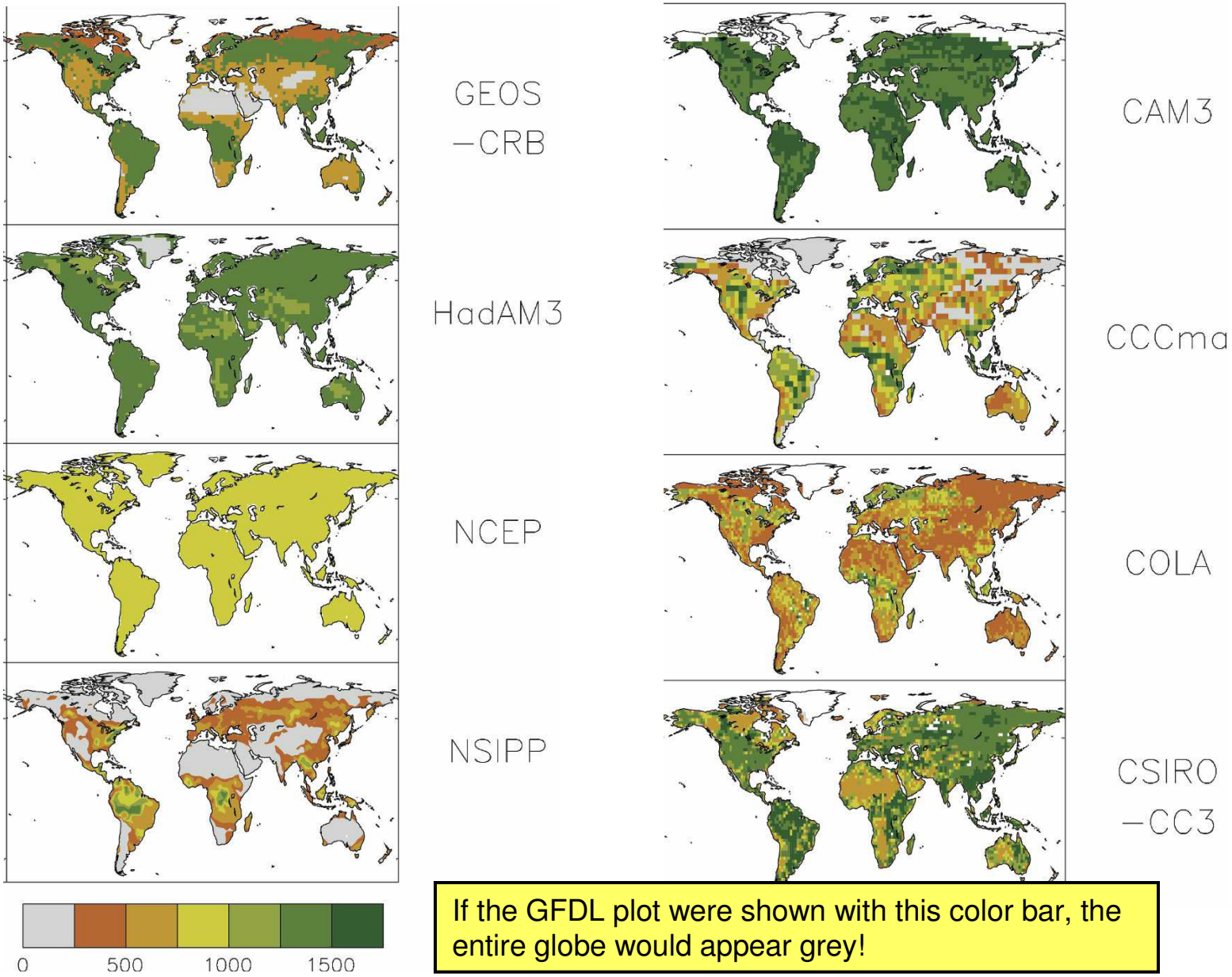


preliminary analyses: Apr.2 09

GFDL water holding capacity (in kg/m2, or mm), from file 1990.max_water.nc.

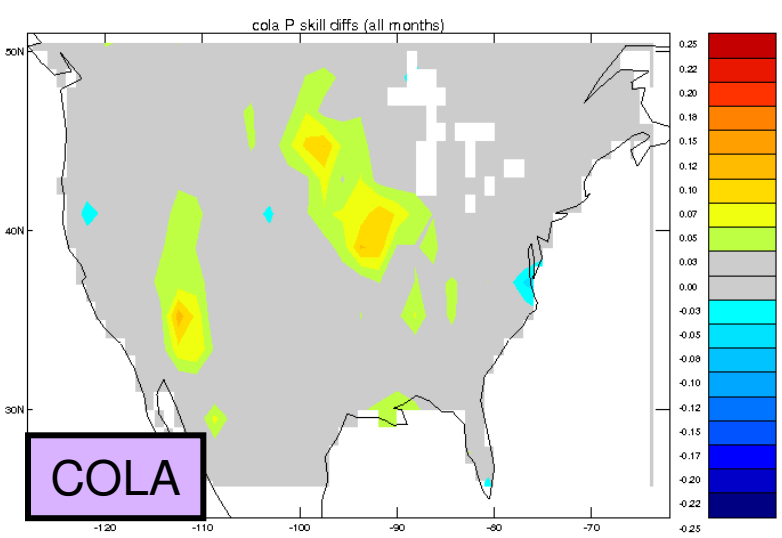


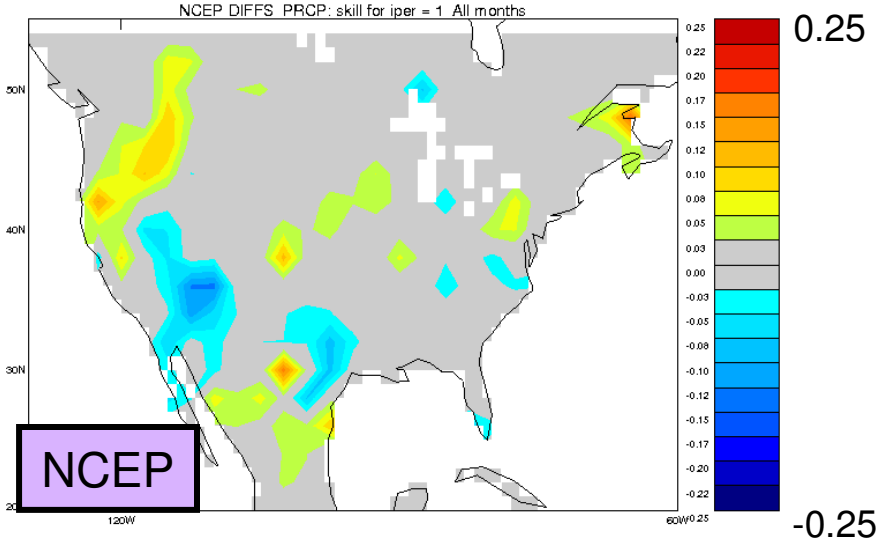
Water holding capacities from Figure 11 of Sonia Seneviratne's memory paper. Units are kg/m2, or mm.



If the GFDL plot were shown with this color bar, the entire globe would appear grey!

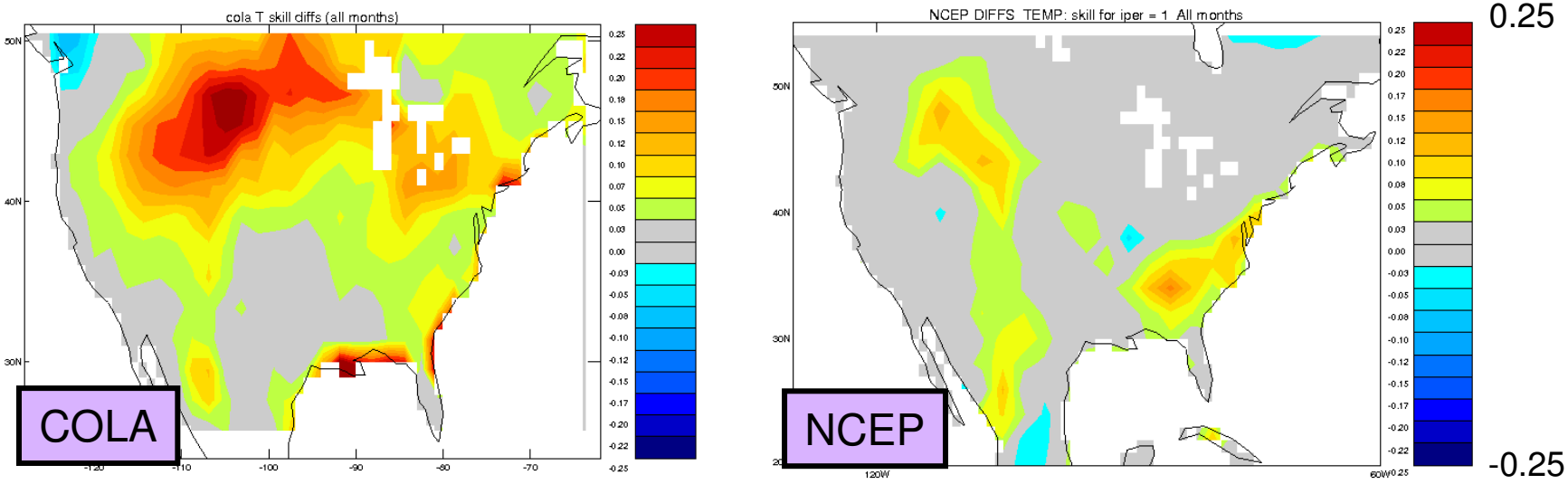
Skill (r^2, vs. observations): Precipitation, Days 16-30 (isolated land contribution)





preliminary analyses: Apr.2 09

Skill (r^2, vs observations): Air Temperature, Days 16-30 (isolated land contribution)



Preliminary calculations suggest that skill contribution is "negative" for GFDL – we're looking into this. (Probably a mistake somewhere on our end.)

Clarify: We will make all data available to all GLACE-2 participants, for individual analyses.

Current tentative schedule:
-- Finish first draft of overview paper by end of summer.
-- Incorporate “straggler” submissions during iteration on text.
-- Submit overview paper by late fall.