SHFP - Stratosphere resolving Historical Forecast Project

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Purpose

- to quantify improvements in *actual* predictability by initializing and resolving the stratosphere in seasonal forecast systems
- to compare with existing seasonal to interannual forecast skill and to provide a hindcast data set that may be used to:
    - demonstrate improvements in currently achievable season forecast skill for a range of variables and lead times
    - understand improvements under particular scenarios such as El Nino and years with an active stratosphere
    - justify changes in operational seasonal forecast approaches and methods as a subproject of the WGSIP Climate Historical Forecast Project: http://www.clivar.org/organization/wgsip/chfp/chfp.php

Hindcasts

- Deadline for data submissions is December 2011
- A set of parallel hindcasts are requested from stratosphere resolving and stratosphere non-resolving models. A stratosphere resolving model is defined here to have:
    - A domain extending to 1hPa (~50km) or higher
    - At least 15 model levels between the tropopause and 1hPa/50km
- The use of existing HFP data as the non-stratosphere resolving hindcasts is welcomed
- Either coupled ocean-atmosphere model or two-tier forecasts are welcome
- Atmospheric *initial conditions* are at the choice of the participant but must *not* include any information from the future
- Land *initial conditions* are at the choice of the participant but must *not* include any information from the future.
    - option 1: use "reanalysis" land surface data modified to your model (recommended)
    - option 2: use model climatologies from an AMIP run.
- SST and sea-ice *initial conditions*
    - SST must *not* contain information from the future with respect to the forecast
        - option 1: persist the observed SSTA anomaly from the month preceding the forecast period (i.e., this anomaly is added to the climatological seasonal cycle of SST's)
        - option 2: statistical or other objective forecast of SSTA which is not developed with nor makes use of future information (e.g. climatology, relaxation of anomalies toward zero with some time scale, other statistical forecast, anomalies from an ocean model initialized and run separately, etc.)

- Sea ice: based on the associated sea ice data but containing no future information.

Data:

- Basic and optional data are shown in the Table below (based on the CHFP protocol).
- The data in any or all entries in the "optional additional" columns is welcomed.
- The NH winter season and SH winter seasons are used: DJF and JJA.
- For new submissions, please contact one of the above named organizers (and/or chfp@cima.fcen.uba.ar).
- The availability of data at local web sites is encouraged but data will also be hosted in parallel to the CHFP.

Diagnosis:

- A series of subprojects is planned to assess skill and associated mechanisms
- Analysis to be carried out jointly with SPARC: Stratospheric Processes and their Role in Climate: http://www.aero.jussieu.fr/~sparc/

	Basic	Optional additional for	
Integrations	4 month lead times (1st November and 1st May start dates) 2 seasons (DJF and JJA) Case study years: 1989 onwards 6 members	12 month lead times 4 seasons 1979 onwards 10 or more members	
Data	Monthly means of: ts, tas, pr, psl Monthly means of: ta (10, 30, 50, 700, 850hPa) ua, va (10, 30, 50, 200, 850hPa) zg (10, 30, 50, 200, 500, 850, 1000hPa) Daily mean values of:	Monthly means of: ta, ua,va,zg (1000, 925, 700, 600, 500, 400, 300, 250, 200, 150, 100, 70, 20, 7, 5, 3, 2, 1, 0.4hPa) Daily mean values of: pr,	

	ua, va, ta (10, 30hPa) Daily mean values of: tas, psl	zg (500hPa)	
Data definitions	ts tas pr psl ta ua va zg snc snw mrso mrsos hfls hfss tauu tauv cl clt rlt hus	ground temperature surface (2m) air temperature total precipitation rate mean sea-level pressure air temperature eastward wind northward wind geopotential height snow cover snow depth (water equivalent) total soil water content surface soil water content (upper 0.1m) surface latent heat flux (+ upward) surface sensible heat flux (+ upward) eastward wind stress (+ eastward) northward wind stress (+ northward) cloud fraction total cloud amount outgoing longwave radiation (+ downward) specific humidity	K K m/s Pa K m/s m/s m % kg/m**2 kg/m**2 kg/m**2 W/m**2 Wm**2 N/m**2 N/m**2 % % W/m**2 kg/kg