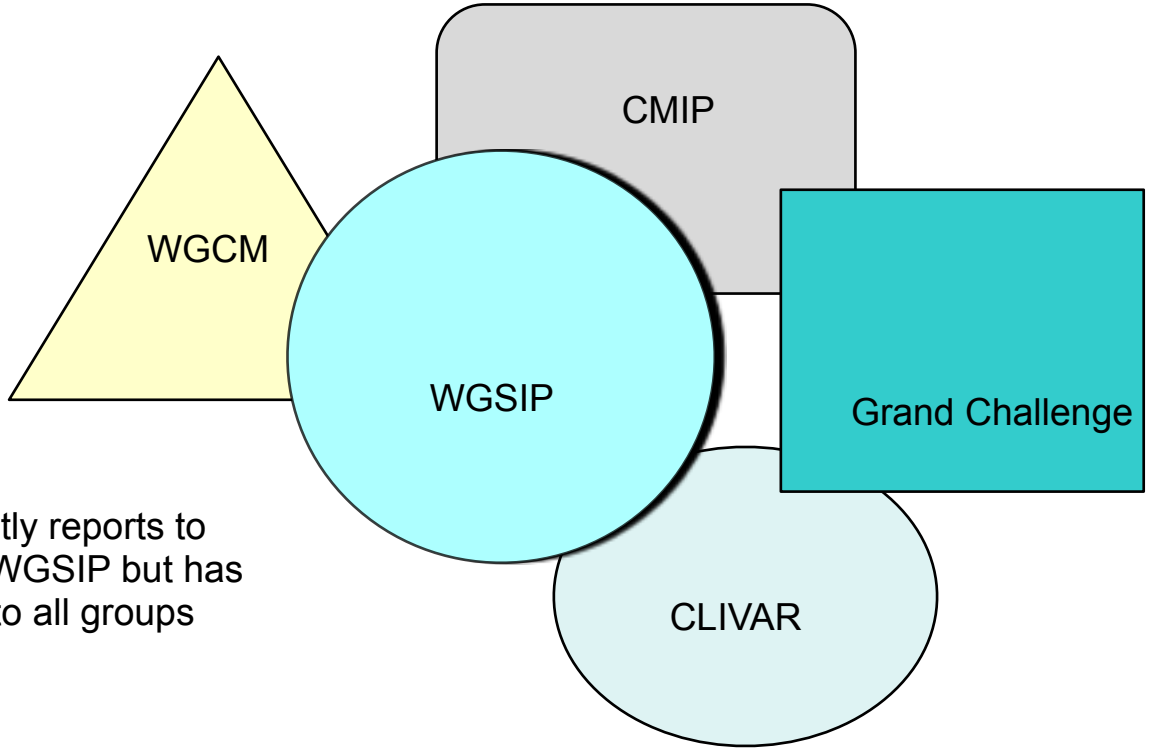
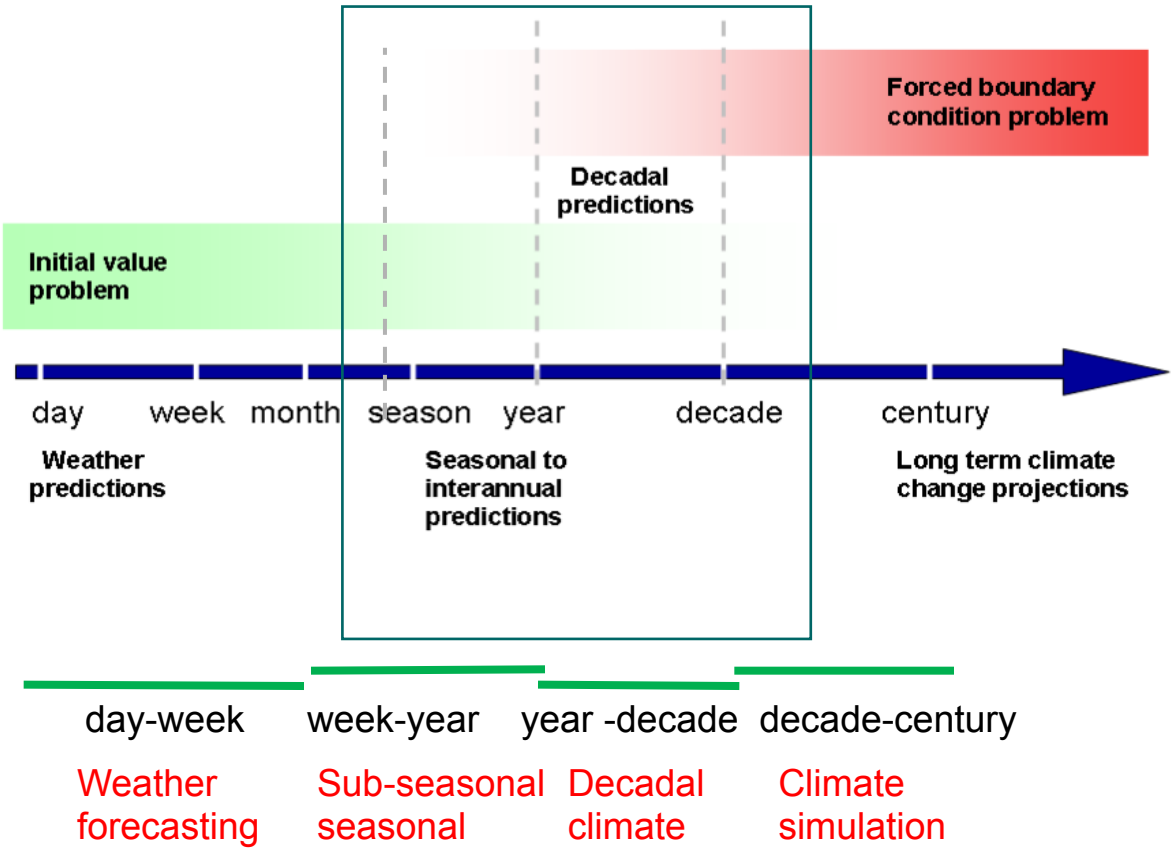
Broad interests in decadal climate variability and prediction

- WGSIP
  - Sub-seasonal to interannual prediction
- WGCM
  - Forced climate change and natural variability
- CMIP
  - Coordinated experimentation including scenarios, decadal prediction ….
- CLIVAR
  - Focus on decadal variability and predictability
- Grand Challenge of Near Term Climate Prediction
  - research and development leading toward operational annual, multi-annual forecasts
- IPCC
  - Near term climate a focus of AR5 and expected to be an important contribution to AR6



DCPP currently reports to WGCM and WGSIP but has connections to all groups

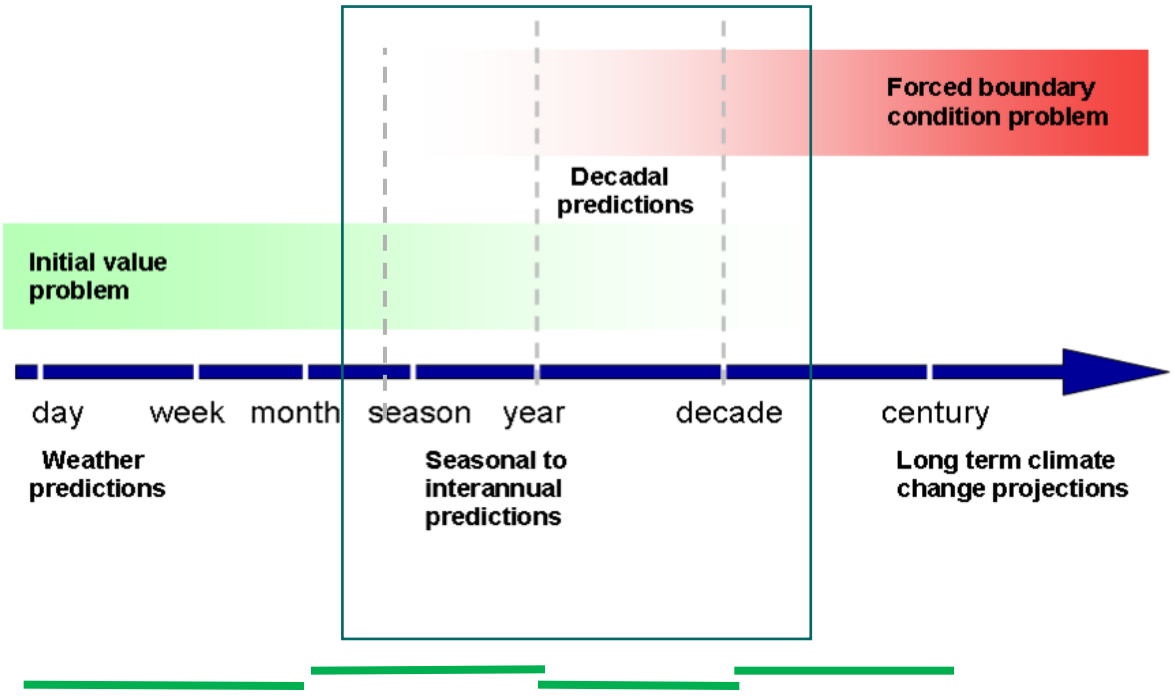
Where does a decadal climate fit?



At least currently, approaches and results depend on timescale:

- atmosphere/land/ocean initialization, ensemble generation
- resolution of models, ensemble size
- independent realizations, start dates
- external forcing, drift
- etc.

Where does a decadal climate fit?



Decadal variability and prediction:

- annual, multi-annual, up to a decade or two
- initialized forecasts of both forced and internally generated components of variability

An Example of Overlap

DCPP Panel

George Boer (co-Chair)	george.boer@ec.gc.ca	Canada
Christophe Cassou	cassou@cerfacs.fr	France
Francisco Doblas-Reyes	francisco.doblas-reyes@ic3.cat	Spain
Gokhan Danabasoglu	gokhan@ucar.edu	USA
Ben Kirtman	bkirtman@rsmas.miami.edu	USA
Yochanan Kushnir	kushnir@ldeo.columbia.edu	USA
Kimoto Masahide	kimoto@aori.u-tokyo.ac.jp	Japan
Jerry Meehl	meehl@ucar.edu	USA
Rym Msadek	rym.msadek@noaa.gov	USA
Wolfgang Mueller	wolfgang.mueller@mpimet.mpg.de	Germany
Doug Smith (co-Chair)	doug.smith@metoffice.gov.uk	UK
Karl Taylor	taylor13@lnl.gov	USA
Francis Zwiers	fwzwiers@uvic.ca	Canada

DCVP focus group

Members

Title	Institute	Role	Year	Country
Cassou, Christophe	CERFACS Climate Modelling and Global Change	Co-Chair		France
Kushnir, Yochanan	LDEO Columbia University	Co-Chair		USA
Hawkins, Ed	University of Reading	Member		UK
Heimbach, Patrick	The University of Texas at Austin; Institute for Computational Engineering and Science (ICES); Jackson School for Geosciences (JSG), Institute for Geophysics (UTIG)	Member		USA
Von Schuckman, Karina	Mediterranean Institute of Oceanography, University of Toulon	Member		France
Masahide, Kimoto	Atmosphere and Ocean Research Institute, University of Tokyo	Member		Japan
Msadek, Rym	NOAA GFDL and UCAR	Member		USA
Mueller, Wolfgang	Max Planck Institute for Meterology	Member		Germany
Power, Scott	Bureau of Meteorology	Member		Australia
Zhou, Tianjun	LASG, Institute of Atmospheric Physics, Chinese Academy of Science	Member		China
Aldo Montesinos	University of Concepción	Member		Chile.
Amy Solomon	NOAA/ESRL	Member		USA
Danabasoglu,Gokhan	NCAR, Climate and Global Dynamics Laboratory	Member		USA
Doblas-Reyes, Francisco	Institut Català de Ciències del Clima, SpainInstitut Català de Ciències del Clima	Member		Spain

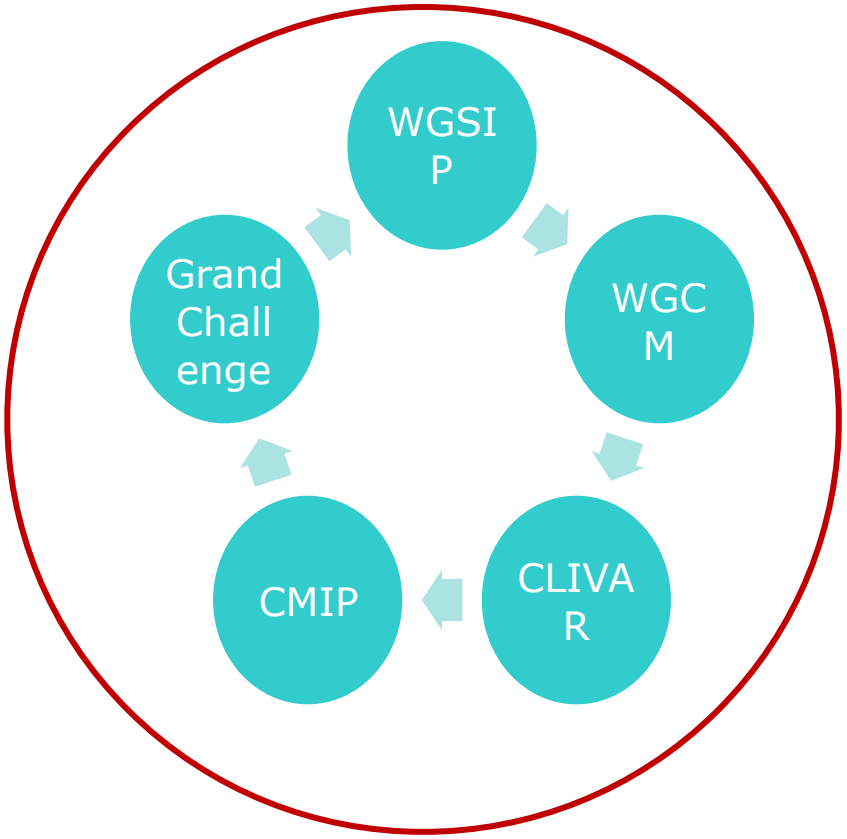
White Paper on WCRP Grand Challenge on Near Term Climate Prediction
Draft, January 2016

Near Term Climate Prediction

Lead Coordinators: Yochanan Kushnir and Adam Scaife
Members: George Boer, David Carlson, Francisco Doblas-Reyes, Ed Hawkins, Masahide Kimoto, Arun Kumar, Katja Matthes, Judith Perlwitz, Scott Power, Marilyn Raphael, Doug Smith and Akihiko Shimpo
WCRP JPS: Mike Sparrow and Matthias Tuma

50% of membership in common across DCPP and DCVP
>50% of NTCP part of DCPP, DCVP

Can we *unify* the several interests in decadal variability and prediction?



Decadal Climate: how best to progress?

- Scientifically would like to benefit from a seamless approach to coupled prediction:
  - methods of initialization & ensemble generation
  - methods of treatment of shocks and drifts
  - understanding of predictability and mechanisms
  - incorporating natural and anthropogenic forcing
- Challenges: all of the above depend on the timescale of interest
  - initialization and deep ocean
  - resolution of models, ensemble size a function of forecast length
  - number of independent cases/start dates very different
  - forcing not an issue at shorter timescales
  - etc. etc.
- Options:
  - modified status quo
  - added layer
  - convergence
  - …..

Options

- Modified status quo:
  - WGSIP covers sub-seasonal to decadal prediction of forced and internally generated climate variations (subsumes DCPP which earlier reported also to WGCM)
  - CLIVAR/DCVP covers decadal variability, predictability (DCPP involvement via Component C)
  - Grand Challenge SG has responsibility for GC on Near Term Climate Prediction
  - other panels, working groups, projects, foci etc. each retain some interest in decadal climate
- Added layer: status quo plus Decadal Climate Steering Group, or equivalent, coordinating/interacting with current panels, working groups, projects, etc.
- Convergence: unified effort in decadal climate with Working Group on Decadal Climate (WGDC), Enterprise Group on Decadal Climate (EGDC), or equivalent
  - avoids overlapping panels, steering groups etc.
  - cross-cutting in the sense of maintaining connections with working groups, projects etc. that have some interest in decadal climate
  - encompasses and merges the DCPP, the DCVP, and the Grand Challenge and provides continuity in decadal climate research

Whither decadal climate research?

- Many groups/organization have interests in decadal prediction
- Panels, WGs, foci, concept groups ….. (some people are members of 4 or more of these)
- Options include: modified status quo, added layer, convergence,…

Next steps?

Options for JSC/WMAC to consider:

- Modified status quo
  - WGSIP, CLIVAR/DCVP, GC SG, ….
- Added layer
  - Decadal Climate Steering Group, …
- Convergence Group for decadal climate
  - e.g. CGDC, EGDC, WGDC,…
- Consultation (via web)
  - SG and WG chairs, JSC members with decadal climate interests
  - members of WCRP panels, WGs, foci, concept groups etc. with some interest in decadal climate