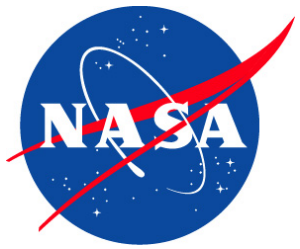
Agency Guidance

U.S. CLIVAR Summit
2013

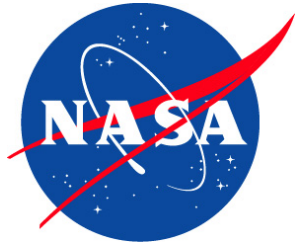


Agency Guidance Presentations

- Relevant agency mission and goals
- U.S. CLIVAR activities supported over the past 3-4 years
- Long-range (5-10 years) climate research areas of interest that intersect with U.S. CLIVAR
- Budget history and outlook
- How U.S. CLIVAR can engage and provide value

Relevant Agency Mission and Goals (unchanged)

- How is the global ocean circulation varying on interannual decadal, and longer time scales?
- What changes are occurring in the mass of the Earth's ice cover?
- How can climate variations induce changes in the global ocean circulation?
- How is global sea level affected by natural variability and human-induced change in the Earth system?
- How can predictions of climate variability and change be improved?

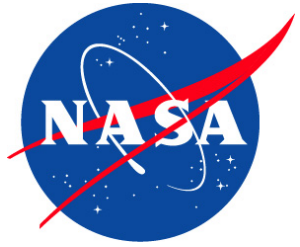


U.S. CLIVAR Activities Supported over the Past 3-4 Years

- Base support for U.S. CLIVAR Office
- Ocean state estimation
- Decadal climate variability research/workshops
- Atlantic Meridional Overturning Circulation research
- Satellite altimetry (OSTM/Jason-2, OSTST)
- Aquarius/Ocean salinity science team (2011 launch

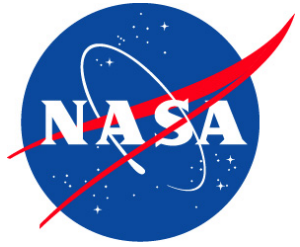
Long-range (~5-10 years) Climate Research Areas of Interest that Intersect with CLIVAR

- End-to-end systems for climate prediction
- Understanding the role of slowly varying components of the earth system (e.g. ocean and ice) in climate (particularly sea level rise)
- Observing system development (esp. space-based technology)
- Atlantic Meridional Overturning Circulation
- Decadal Climate Variability (particularly ocean role)



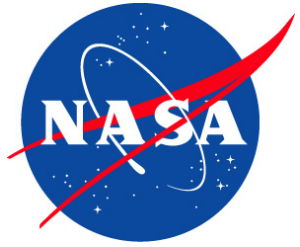
Budget History and Outlook

- Earth Science Division (ESD) budget has been relatively stable in recent years (~$1.7B/yr)
- NASA ESD budget is organized around missions and research – missions dominate and large parts of research funding follow from missions. Linkage of proposals to NASA remote sensing is very important.
- Physical Oceanography Research (~$25-30M/yr, ~160 projects)
- Research solicited through Research Opportunities in Space and Earth Science (ROSES) issues in mid-Feb each year.
  - Physical Oceanography (due end June each year) (success rate ~25%)
  - Ocean Salinity Science Team (due end July 2013)
  - Ocean Vector Winds Science Team (due end Oct 2013)
  - SPURS Synthesis (due end of Nov 2013)
  - Sea Level Rise (under review)
  - Ocean Surface Topography Science Team (recently selected)



How to Engage and Provide Value (continuing)

- PPAI - Climate/Decision Support interface
- PSMI - Process Improvement into ESMF, SPURS, ocean-ice sheet interaction,
- POS - Systematic measurements and development of climate data records, observing system priorities
- Map CLIVAR ambitions to agency goals, agendas, and priorities (can we carve CLIVAR into agency-friendly segments - the challenge continues)



Relevant Agency Mission and Goals

- Advance discovery, knowledge and understanding in all areas of climate science – emphasis on transformative results
- Promote teaching, training, and learning in climate and related sciences – broaden participation of women and minorities in climate science
- Bring benefits to society though advancement in climate research

U.S. CLIVAR Activities Supported over the Past 3-4 Years

- CMIP5 Analyses and ocean reanalyses
- 3 Climate Process Teams
- Field Campaigns/Process Studies: DIMES, DYNAMO
- AMOC/RAPID sustained observations and modeling
- Year of Tropical Convection

- Related work: EaSM solicitations with DOE and USDA on decadal and regional modeling and predictions

Long-range (~5-10 years) Climate Research Areas of Interest that Intersect with CLIVAR

- Process understanding
- Predictability of the climate system on various time and space scales
- Climate extremes and coupling to extreme weather
- New observing techniques in ocean and atmosphere
- Sustainability Theme: System approach (e.g., EaSM)
  - Quantification of climate information uncertainties
  - Improved observations and modeling of climate forcing (e.g. aerosols)
  - Diagnostics and model improvement and evaluation (component and coupled models)
  - Unified modeling approach: weather-interannual-decadal time scales
  - High resolution climate models; “cloud resolving”, “eddy resolving”, Regional Climate Models, downscaling/upscaling, in general with more model components

How to Engage and Provide Value

- Identify a (small) set of critically important questions and the facilities and research required to address them. These need not be new, as long as they are critically important and limited not by ideas but by resources.
- U.S. CLIVAR should provide feedback on long-range scientific priorities
- Briefings to NSF Management to highlight CLIVAR achievements and new opportunities
- Always strive to represent the broader climate research community
- Activities, such as fostering the availability of tools and datasets, that enhance the productivity of investigators
- Providing information and fostering interactions that lead the submission of stronger research proposals