Observation System Overview, Assessment and Oversight

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Climate Observation Program Workshop

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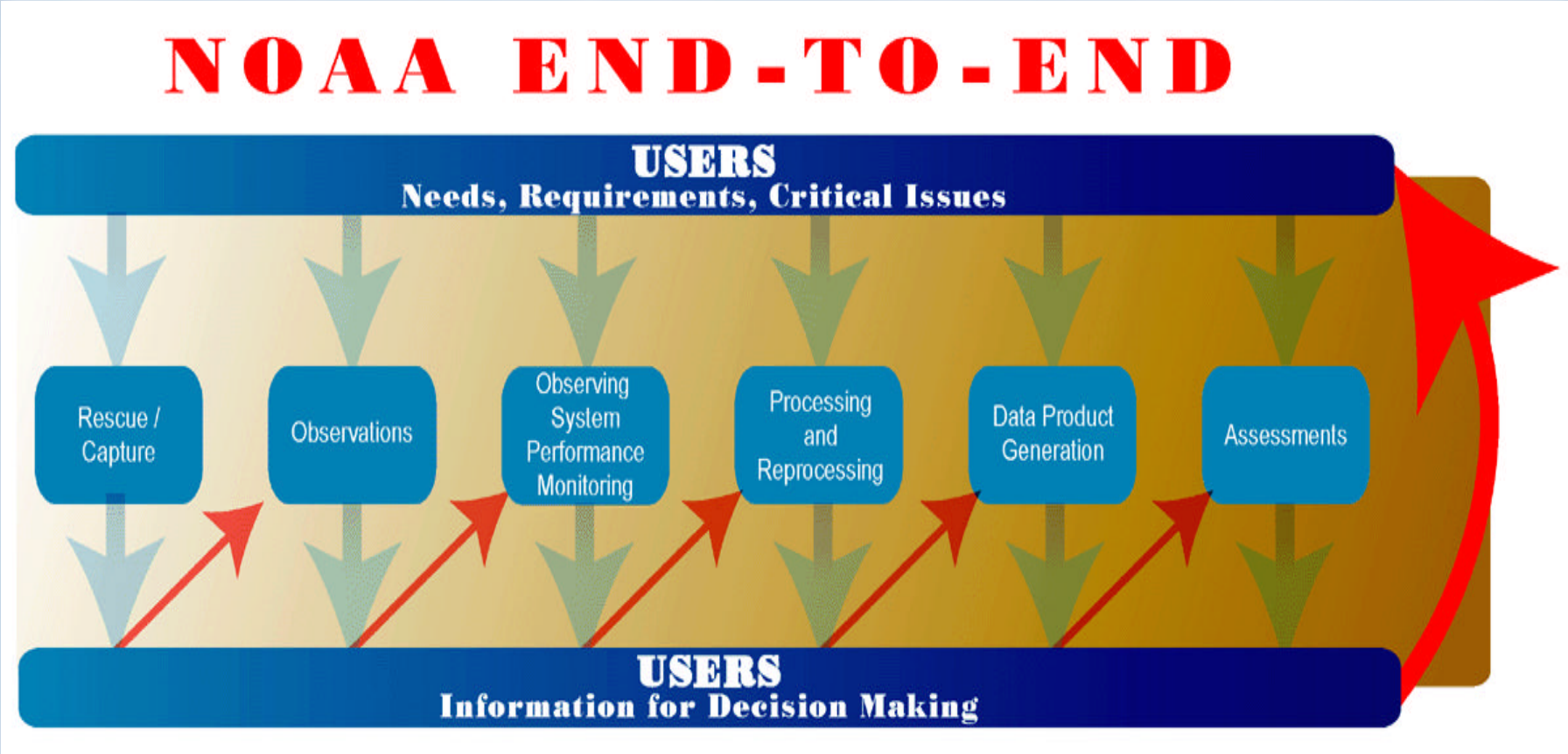
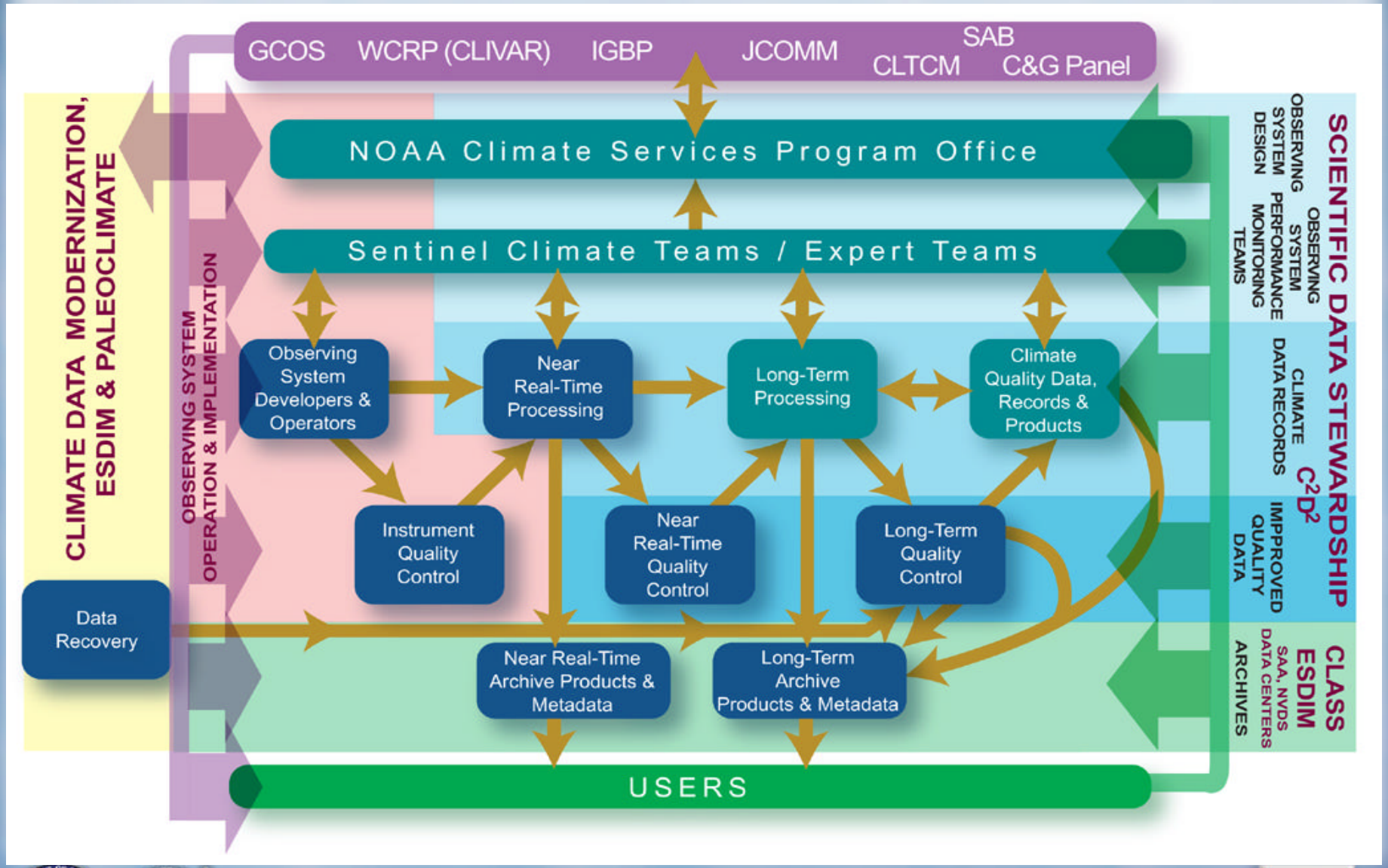
Overall Strategy



NOAA Climate Observations & Monitoring



Implementing NOAA's Scientific Data Stewardship

Status of NOAA Environmental Data Management FY2002

	Data Sets and Observations[1]	End-to-End Environmental Data Management Functions								
		CDMP / ESDIM		CLASS / CDMP				SCIENTIFIC DATA STEWARDSHIP		
		Planning	Rescue	Ingest	Store	Access	Migrate	Metadata/ Cataloging	Calibrate/ Validate	Products
HISTORICAL	In Situ[2] - Centers of Data	Can Do	Requires Substantial Additional Resources	Can Do	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Need Incremental Resources
HISTORICAL	NOAA National Data Centers	Can Do	Requires Substantial Additional Resources	Can Do	Can Do	Can Do	Can Do	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources
HISTORICAL	Coop/USHCN	Can Do	Can Do	Can Do	Can Do	Can Do	Can Do	Can Do	Need Incremental Resources	Can Do
HISTORICAL	GHCN	Can Do	Can Do	Can Do	Can Do	Can Do	Can Do	Can Do	Need Incremental Resources	Can Do
HISTORICAL	CARDS/COADS	Can Do	Can Do	Can Do	Can Do	Can Do	Can Do	Can Do	Need Incremental Resources	Can Do
MODERNIZATION	DMSP	Can Do	Can Do	Can Do	Need Incremental Resources	Need Incremental Resources	Requires Substantial Additional Resources	Can Do	Need Incremental Resources	Need Incremental Resources
MODERNIZATION	POES	Can Do	Can Do	Can Do	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources
MODERNIZATION	ASOS	Can Do	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources
MODERNIZATION	NEXRAD	Can Do	Need Incremental Resources	Need Incremental Resources	Need Incremental Resources	Requires Substantial Additional Resources	Need Incremental Resources	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources
MODERNIZATION	GOES	Can Do	Can Do	Need Incremental Resources	Can Do	Need Incremental Resources	Can Do	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources
FUTURE	MODEL OUTPUT	Can Do	Need Incremental Resources	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Need Incremental Resources	Need Incremental Resources
FUTURE	New In-Situ Land & Ocean Observing Systems	Can Do	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources
FUTURE	NPP	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources
FUTURE	NPOESS	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources
FUTURE	EOS[4]	Need Incremental Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources	Requires Substantial Additional Resources

= Can Do with Current Resources

= Need Incremental Resources

= Requires Substantial Additional Resources

Implementing NOAA's Scientific Data Stewardship

NOAA's Satellite, Data, and information Stewardship FY03

	Data Sets and Observations	Data Rescue Stewardship		Information Technology Stewardship (CLASS)				Scientific Data Stewardship (SDS)				
								Observing System Performance Monitoring (Near Real-Time)		Climate Data Records (Long-Term Processing)		Assessing State of the Environment (Ongoing)
		Planning	Rescue	Ingest	Store	Access	Migrate	Bias Monitoring	Products, Assimilation, Metadata	Data Characterization	Sentinel Blended Products	Information for Decision Makers
Historical	In Situ Research											
	Land											
	Ocean											
Current	DMSP											
	POES											
	ASOS											
	NEXRAD											
	GOES											
	MODEL OUTPUT											
Future	New In-Situ Land & Ocean											
	NPP											
	NPOESS											
	EOS											

= Can Do with Current Resources = Need Incremental Resources = Requires Substantial Additional Resources

Implementing NOAA's Scientific Data Stewardship

Status of Major NOAA Climate-Related Observation Systems

		Observng System	End-to-End Observing and Monitoring									
			PLANNING	OPERATIONS					SCIENTIFIC DATA STEWARDSHIP			DATA MANAGEMENT
				COMPS	Geographic Coverage	Temporal Completeness	Network Perf. Measures	Processing	Maintenance	NRC Climate Principles	Post Processing	
RESEARCH		CO_2 Baseline Observations										
RESEARCH		Carbon Cycle										
RESEARCH		Atmos. Composition										
RESEARCH		Airplanes/Ships										
OPERATIONS	Land	Climate Ref. Network										
OPERATIONS	Land	ASOS										
OPERATIONS	Land	COOP										
OPERATIONS	Land	Upper Air										
OPERATIONS	Space	POES										
OPERATIONS	Space	GOES										
OPERATIONS	Ocean In Situ	Heat										
OPERATIONS	Ocean In Situ	Sea Level										
OPERATIONS	Ocean In Situ	Salts										
OPERATIONS	Ocean In Situ	Wind										
OPERATIONS	Ocean In Situ	Carbon										
FUTURE		GOES-R										
FUTURE		NPOESS										

= Can Do with Current Resources = Need Incremental Resources = Requires Substantial Additional Resources

Implementing NOAA's Scientific Data Stewardship

State of the Ocean

OCEAN	Global Observation			Data Management			Product Delivery			Regular Reports		
	Plan	Global Implementation	Validation	Data Assembly	Data Archive	Climate Data Record	Global Maps	Indexes	Time Series	State of the Ocean	Confidence Evaluation	Adequacy of the Observing System
upper ocean currents												
ocean surface wind & wind stress												
surface ocean temperature												
incoming surface shortwave radiation												
sea level/surface topography												
downwelling longwave radiation												
upper ocean surface salinity												
surface air temperature/humidity												
sea ice												
precipitation (fresh water/salinity flux)												
mid and deep ocean currents												
fresh water flux from rivers & ice melt												
sub-surface thermal structure												
evaporation												
sub-surface salinity structure												
geothermal heat flux--ocean bottom												
organic & inorganic effluents												
(into ocean)ocean biomass/phytoplankton												

Recommendations

- ✓ **Work toward a layered approach using all Observing and Data Management Systems**
- ✓ **Link to Observing System Architecture (NOSA) e.g., 199 Observing Systems**