CLIMATE

DEFINE AND DEVELOP SATELLITE OCEAN REMOTE SENSING
1) CLIMATE DATA RECORDS,
2) DATA ASSIMILATION,
3) AND DATA PRODUCTS/TOOLS.

Knowledge Base

Ocean Color
SSH
Ice
Winds
Blended SST

CLIMATE MODELING, DATA ASSIMILATION

Currents
PDO
NAO
ENSO
Productivity
Upwelling

DECISION SUPPORT TOOLS

Temperatures
Mean Values
Anomalies
Trends
GMSLR
Currents

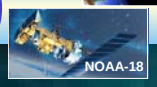
CLIMATE ANALYSES/ PRODUCTS

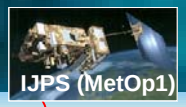
Define Sea Ice CDR | Develop Sea Ice CDR
Define Ocean Color CDR | Develop Ocean Color CDR
Define SSH CDR | Define SSH CDR
Define SST CDR | Develop SST CDR
Define Ocean Surface Winds CDR | Develop Ocean Surface Winds CDR

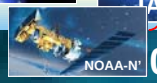
CDRs

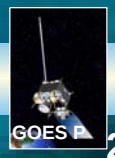
CONTRIBUTIONS

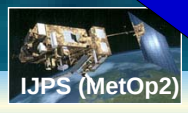
- CONNECTIONS WITH DATA ASSIMILATION
- CONNECTIONS WITH MARINE ECOSYSTEMS
- CONNECTIONS WITH CLIMATE
- REFERENCE BASELINE DATASETS

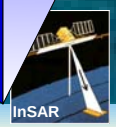












2006 2007 08 2009 2010 2011

LAUNCH DATES

Data Assimilation

Provide satellite ocean remote sensing data for operational ocean, atmosphere, and coupled ocean-atmosphere models, as well as IOOS National Backbone, regional, and NOAA Mission Goal modeling efforts.

Knowledge Base

Climate Models

- Sea Ice model development
- Assimilate sea ice thickness from altimetry models
- Assimilate sea surface height data from JASON-1

Coupled Ocean-Atmosphere Modeling

Atmosphere Models

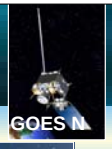
- Introduce SAR winds into hurricane models
- Assimilate SAR winds into MM5
- Assimilate sea ice data
- Blend IR & MW satellite data to obtain best values
- Assess wind vector analysis on operational marine forecasting
- Wind Vectors: Assimilate scatterometry data
- Wind Vectors: Assimilate passive polarimetry data

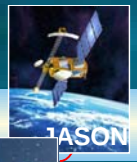
Ocean Models

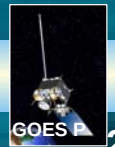
- Assimilate SAR products into coastal models
- Assimilate GhostNet data into GIS systems
- Assimilate sea ice data
- Merge GOES/POES retrievals with NCEP reanalysis to improve climatologies
- Incorporate oil spill and wind data into oil spill trajectory models
- Process GFO data & update RADS
- Radiance Assimilation
- JASON-2:incorporate altimeter data into operations and research
- Applying retracking algorithms to multiple altimeters, blend with in situ G&B for improved sea surface height slope recovery
- Use wide-swath data with other satellite and in situ data for bathymetric mapping
- Blend IR & MW satellite data to obtain best values
- Evaluate use of ocean color biophysical feedback on operational models
- Wind Vectors: Assimilate scatterometry data
- Wind Vectors: Assimilate passive polarimetry data
- Assimilate sea surface height data from JASON-1

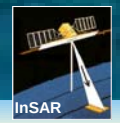
Contributions

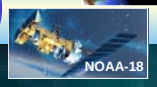
- Mapping Arctic Ocean for climate applications
- Improve climatologies
- OSCAR
- Assess impacts on operational marine forecasting
- Absolute surface currents for global dynamic topography
- Improve G&B products

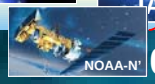












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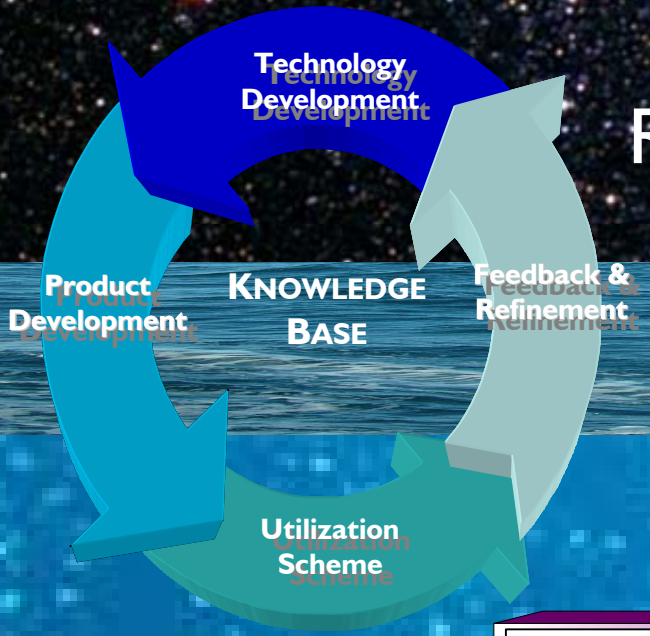
Launch Dates

Research to Operations



Design and implement of operational satellite remote sensing products and services, providing an efficient effective delivery system to the user community.

Contributions

- Users
- Delivery System
- Education & Outreach
- Data Products
- Satellite Data Streams
- Space & Ground Systems

Jason 2

Generation of near-real-time altimetry products in conjunction with EUMETSAT

NDE

Present products in unique projections

Sub sample atmospheric radiances for numerical weather prediction

NPP

Reformat EDRs

Validate instruments

Early evaluation of data products

NPOESS

Transition to VIIRS bio-optical product

WindSAT validation

Demo program to measure the full ocean surface wind field using passive polarimetry

GOES-R

Transition to HES bio-optical product

Synthetic Products | Demonstration | Test Products

IJPS (MetOp)

Provide higher than nominal resolution wind velocity measurements

Validate SST

Validate ASCAT

Coral Reef Watch

In situ cross cut of environmental, biological, and hydrodynamic assessments

Development of CD specific OC, SSH, SSW, & satellite insolation fields

Transition to CREIOS-IOOS based operations

OceanWatch

Provide new products

Concept Framework Development

International Demonstration in Support of GOOS

Additional International Nodes Introduced

CoastWatch

Implement SSH products (OSCAR)

NPP Ocean Color products available

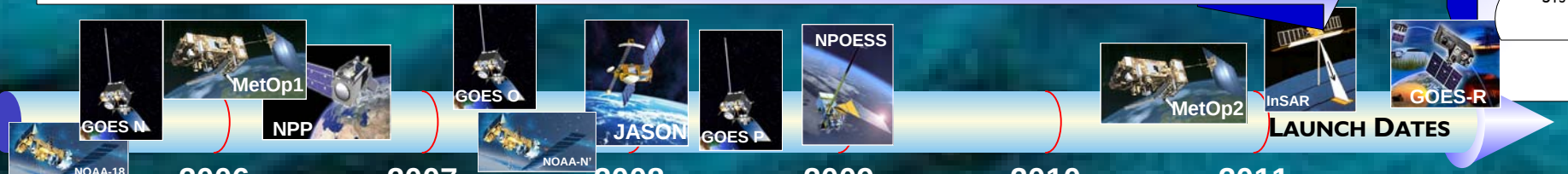
Demonstration of IOOS Support

Applications & Validation

Validate GhostNet convergence zones

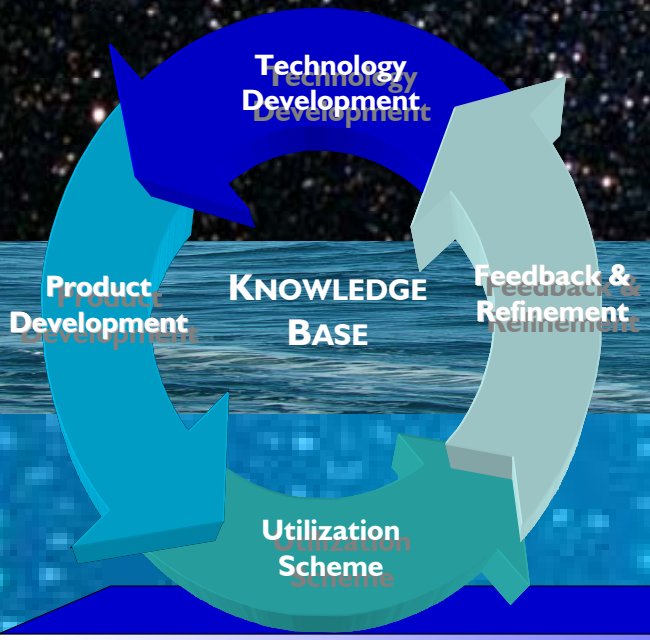
Coastal bathymetric mapping product

Provide seasonal ice forecasting products



Launch Dates

Research to Operations: NASA - NOAA



Transition NASA technology and data streams to NOAA operations; Provide operational data and products

Surface Vector Winds

- Operational impact of SVW at TPC/OPC
- Develop improved operational rain flag for characterizing cyclones
- Access to WindSAT by WFOs
- Finer resolution landmask and SVW for use at coastal WFOs
- Operational impact of SVW at coastal WFOs

Sea Surface Height

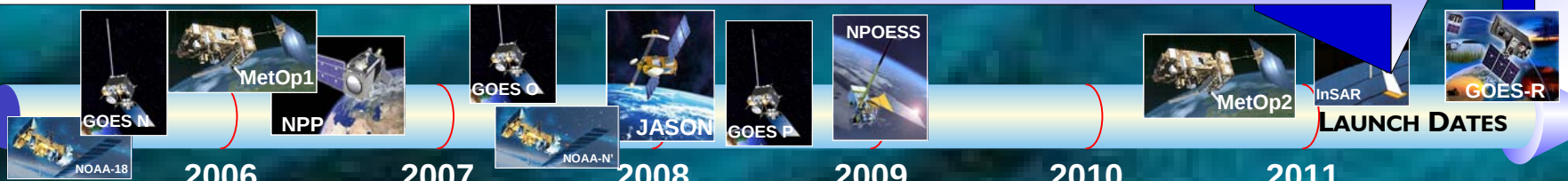
- Combine SSH and SVW for ocean current analysis
- Observational requirements for GSLR
- Socioeconomic impacts of GSLR
- Operational calibration and QA for JASON-2

Ocean Color

- Develop robust in-situ oceanic calibration capability
- Define operational climate-quality ocean color
- Facilitate access to multiple satellite data for fisheries & IOOS requirements
- Operational NPP/VIIRS Ocean Color

Contributions

- Transition to Operations
- Satellite Data Access
- Operational Data Streams
- Operational Products



Launch Dates

CALIBRATION / VALIDATION

PROVIDE GEOPHYSICAL SATELLITE OBSERVATIONS WITH DEFINED UNCERTAINTIES TO THE OPERATIONAL AND SCIENCE COMMUNITIES WITH A LONG TERM GOAL TO PROVIDE CLIMATE-QUALITY DATA RECORDS.

Knowledge Base

GOES R
- Vicarious calibration of HES-CW
- ABI Cal/Val

MOBY
- Reengineer MOBY for MOBY II
- Vicarious calibration of MODIS
- Vicarious calibration of NPP
- Setup COBY for validation & characterization of GOES-R
- Vicarious calibration of GOES-R
- Vicarious calibration of NPOESS

NPOESS
- Validate WindSAT
- Validate CMIS retrieval algorithm
- Validate CMIS
- Vicarious calibration of NPOESS
- QC/QA/Validation system in place by NPOESS launch
- Evaluation/Validation NPOESS VIIRS

NASA
- Vicarious calibration of MODIS
- CryoSAT Cal/Val flights

JASON-2
- Develop automated procedures for data QC
- Wide-swath data to improve resolution

IJPS (METOP)
- QC/QA/Validation system in place by MetOp/NPP launch
- Validate ASCAT wind vectors

ENVISAT
- Validate ASAR algorithm

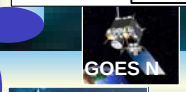
NPP
- Vicarious calibration of NPP

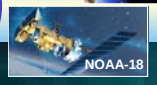
SAR
- Validate ice mask
- Include Cal/Val in calculation for coastal bathymetry
- Validate oil spill product & multifrequency algorithms
- Validate circumpolar/katabatic winds
- Planning & development of SAR operational validation system
- Validate new along track interferometry product
- Validate new ship detection algorithm

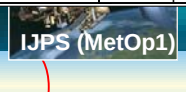
POES
- AHVRR Reprocessing
- NOAA 18:Initial post launch cal/val
- NOAA 18:Implement routine operational cal/val
- NOAA 19: Initial post launch cal/val

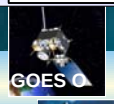
GOES
- AHVRR Reprocessing
- GOES 13: Post launch cal/val
- GOES 13: Implement routine operational cal/val
- GOES 14: Post launch cal/val
- GOES 14: Implement routine operational cal/val

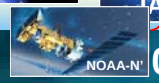
CONTRIBUTIONS
- NEXT GENERATION GOES
- NEXT GENERATION POLAR
- NEW ALTIMETER
- PARTNER WITH ESA
- NPOESS RISK REDUCTION
- CURRENT POLAR OPERATIONAL
- CURRENT GOES OPERATIONAL

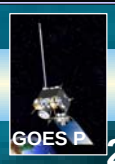


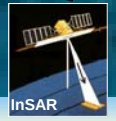










LAUNCH DATES

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