STAR Cooperative Research Programs: Progress & Prospects

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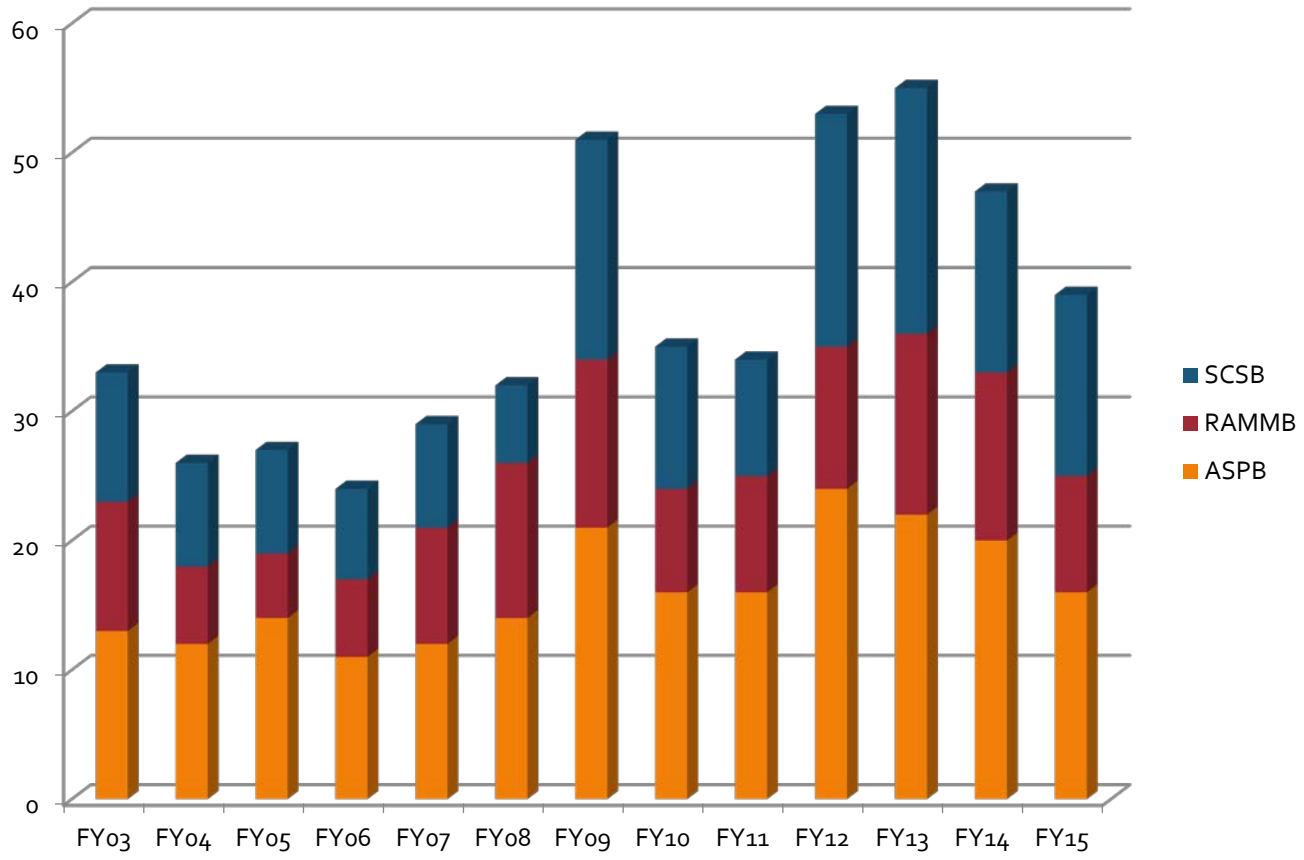
Introduction

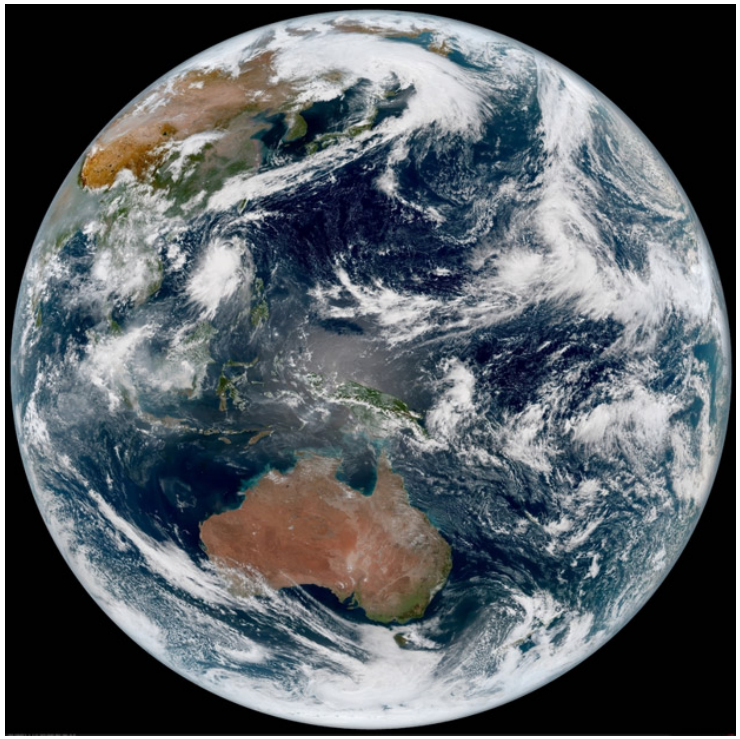
- The three cooperative institutes managed by STAR are the centers of excellence in their fields of expertise
- Providing core capabilities to process science data outside JPSS and GOES-R
- Test bed for new products – Himawari Data
- Backbone of training users (e.g. NWS)
- Large number of scientific publications (~30/year)

Large Number of Publications

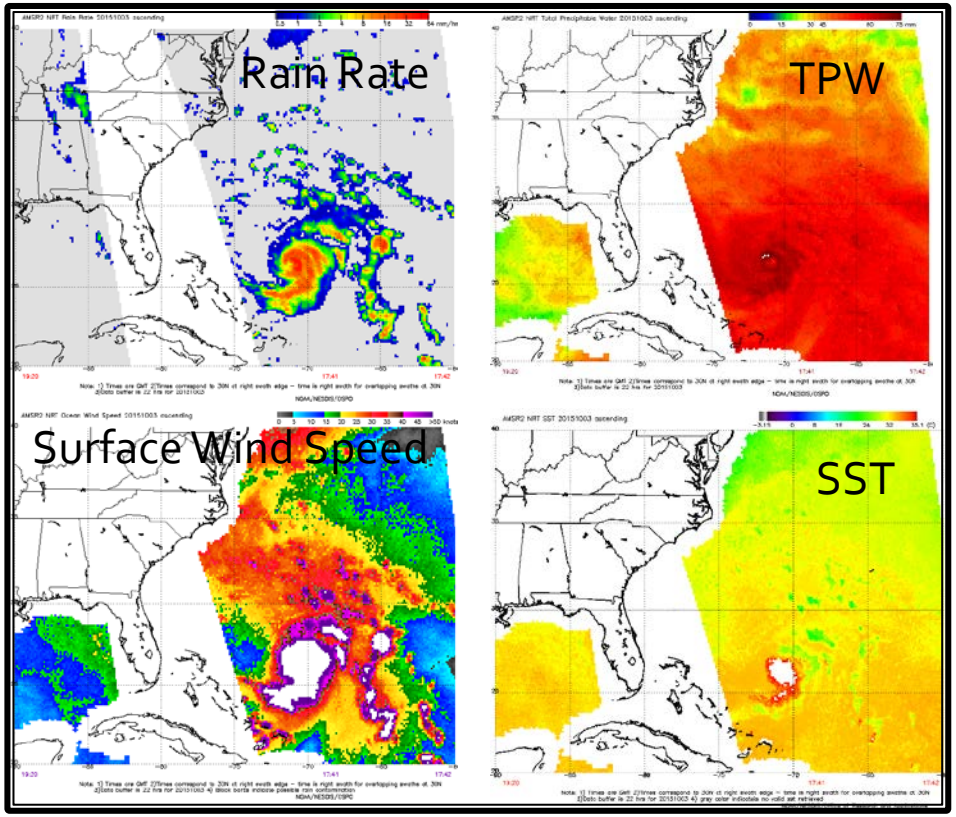


Publications with CI and NOAA joint authorship

Examples of Significant Accomplishment by the CIs



CIMSS, CIRA: Himawari Data Distribution



CICS- GCOM AMSR-2 Products become operational on November 4

New CoRP Quarterly Newsletter

http://www.orbit.nesdis.noaa.gov/star/corp_newsltr_2015Q3.php

Cooperative Research Program Quarterly

Volume 1, Issue 1 July - September 2015

Science and Applications | News | Publications

Images From Advanced Himawari Imager Now Available at CIMSS and CIRA

STAR began receiving AHI data from the JMA Cloud Service routinely since the end of March 2015. The Advanced Himawari Imager (AHI) is nearly identical to ABI except for two spectral bands, and this provides a unique opportunity for the AWG to validate their algorithms. This data is also vital for NWS operational needs in the Pacific (e.g.). RAMMB/CIRA and ASPB/CIMSS have started production and distribution of imagery. Software was written to read the raw data in real time, process it, and output imagery which is served here http://rammb.cira.colostate.edu/ramsdis/online/himawari-8.asp and via the CIMSS Real Earth page here https://realearth.ssec.wisc.edu/. Multiple requests have been received from both Pacific Region NWS personnel and people and agencies internationally asking that sectors be added over thier region of interest; these have been accommodated at the RAMMB link above. In addition, RAMMB/CIRA is sending out some of the bands in real time via the LDM for use by the NWS Ocean Prediction Center and Aviation Weather Center. To the right is an example of a full disk true color image based on CIRA's Hybrid Atmospherically Corrected method.

Himawari-8 true color image using the CIRA Hybrid Atmospherically Corrected method, as it appears on the RAMMB/CIRA real time webpage, from 10-2-2015 at 0300 UTC
(click to enlarge)

First Article on Decadal Changes in Ocean Acidification

New research conducted by NOAA and Cooperative Institute for Climate and Satellites at the University of Maryland scientists identify areas of global ocean most vulnerable to ocean acidification. A paper published in *Global Biogeochemical Cycles* presents, for the first time, a climatological distribution of aragonite saturation state in surface and subsurface waters of the global oceans. Aragonite saturation state is used to track ocean acidification because it is a function of carbonate ion concentration. The figure below shows the climatological distributions of aragonite saturation state (Ωarag) in surface waters of the global oceans (black dots show the sampling stations).

The climatological distributions of aragonite saturation state (Ωarag) in surface waters of the global oceans (black dots show the sampling stations)
(click to enlarge)

The authors discuss the mechanisms controlling the aragonite saturation state distribution and show seasonal and decadal changes:

Jiang, L.-Q., R. A. Feely, B. R. Carter, D. J. Greeley, D. K. Gledhill, K. M. Arzayus, 2015: Climatological distribution of aragonite saturation state in the global oceans, *Global Biogeochemical Cycles*, 29, DOI: 10.1002/2015GB005198.

The NOAA press release for this article can be found at: http://research.noaa.gov/News/NewsArchive/LatestNews/TabId/684/ArtMID/1768/ArticleID/11386/NOAA-led-research-identifies-areas-of-global-ocean-most-vulnerable-to-ocean-acidification.aspx?utm_source=newsletter&utm_medium=email&utm_campaign=CWG_1016

Importance: Analysis of ocean acidification data promotes NOAA's mission to conserve and manage marine ecosystems.

NOAA Priority Areas

- **Information & Services for Resilient Communities**
  - Improve NOAA's ability to provide information that can be used to make smart decisions, assess risk and minimize losses
- **Evolve the National Weather Service**
  - Overhaul next generation weather radar; National Water Center; improve forecasting skill
- **Invest in Observational Infrastructure**
  - Launch GOES-R, begin polar follow on mission
- **Achieve Organizational Excellence**
  - Invest in NOAA facilities

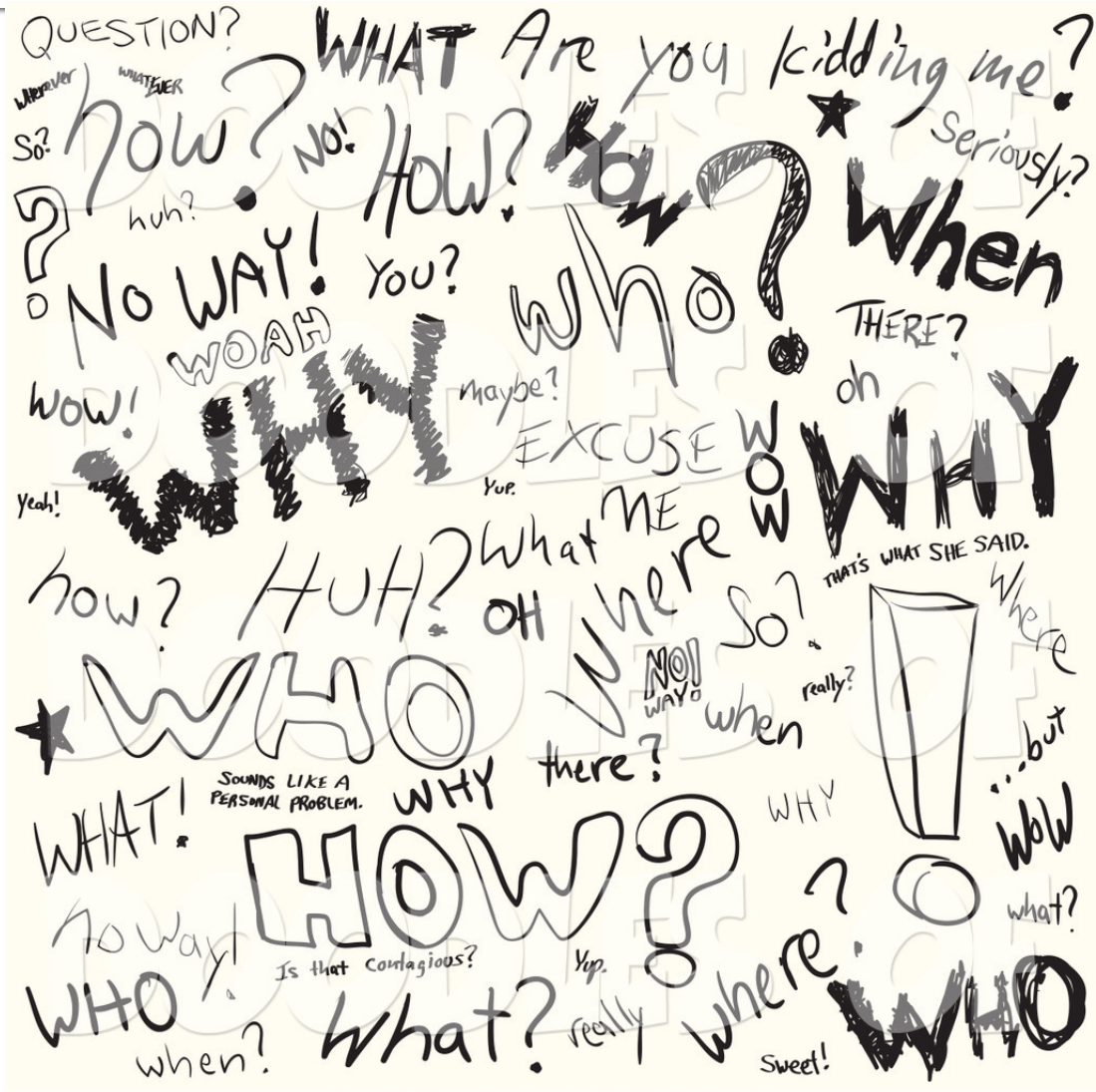
NOAA Strategic Research Guidance

- **Integrated Earth System Processing and Prediction**
  - Develop unified modeling approach across disciplinary boundaries
- **Observing System Optimization**
  - Intercalibration of sensors; sustained observation of climate relevant variables; development of new sensors & platforms
- **Decision Science, Risk Assessment and Risk Communication**
  - Develop broad understanding of how people respond to scientific information and uncertainty
- **Data Science**
  - Extracting information from large collection of heterogeneous data
- **Water Prediction**
  - Develop unified modeling strategy around water cycle understanding and prediction
- **Arctic**
  - R&D to improve monitoring, understanding, prediction and projection of the Arctic environment; fill critical observational gaps

My Vision

- Sustainable Growth
- Provide near-term solutions to operational needs
- Adapt new technologies and approaches for enterprise implementation across all missions
- Agile approach to process data from non NOAA missions
- Partnership with industry

Questions?



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