



JPSS Proving Ground and Risk Reduction Update 4 Nov 2013



Important Topics

- JPSS Program Status
- SNPP Initiatives of Interest
- JPSS Science Seminars
- Participation in Future Conferences and Meetings



JPSS Program Status

- SNPP operating nominally
- Met with Independent Review Team (IRT) on 23-24 Oct. IRT feedback being evaluated
- Planning and execution of cross-project activities and mission-level integration events
- JPSS-1 Mission and JPSS-1 Ground Schedule being refined
- Progress on NSOF
 - December 2 delivery of JPSS computer racks
 - Additional power and cooling available in the Computer Room by mid-December
- Work Continues on Algorithms
- JPSS-1 Mission CDR – February 18-20



IDPS Algorithm Maturity Status 10 Sep 2013

Sensor	Algorithm	Beta	Provisional	Val 1	Val 2	Val 3
ATMS	RDR					
ATMS	SDR - Cal & Geo	Feb-12	Feb-13	Feb-14		
VIIRS	SDR - Cal & Geo	Apr-12	Mar-13	Feb-14		
VIIRS	Imagery (Not NCC)	May-12	Feb-13	Jan-14	Jan-14	Jan-14
VIIRS	NCC Imagery	Oct-12	Sep-13	Jan-14	Jan-14	Jan-14
VIIRS	Cloud Mask	Jun-12	Feb-13	Dec-13	Jun-14	Mar-15
VIIRS	Cloud COP	Jul-13	Jan-14	May-14	Nov-14	Nov-14
VIIRS	Cloud CTP (CTH, CTT, CTP)	Jul-13	Jan-14	May-14	Nov-14	Nov-14
VIIRS	Cloud CBH	Jul-13	Jan-14	May-14	Nov-14	Nov-14
VIIRS	Cloud CCL, PPC & GCE	Jul-13	Jan-14	May-14	Nov-14	Nov-14
VIIRS	Aerosols (AOT)	Sep-12	Jun-13	May-14	Nov-14	Nov-15
VIIRS	Aerosols (SM)	Jun-13	TBD	TBD	TBD	TBD
VIIRS	Aerosol Particle Size	Sep-12	Jun-13	May-14	Nov-14	Nov-15
VIIRS	Surface Temps - SST	Feb-13	Nov-13	Mar-14	Sep-14	Mar-15
VIIRS	Surface Temps - IST	May-13	Sep-13	Dec-13	Mar-14	Sep-14
VIIRS	Surface Temps - LST	Dec-12	Jun-13	Dec-13	May-14	May-15
VIIRS	Land Surf Type	Feb-13	Dec-13	Sep-14	Sep-15	Dec-15
VIIRS	Land Surface Albedo	Jul-13	Mar-14	Nov-14	Nov-15	May-16
VIIRS	Sea Ice Albedo & Combined Surface Albedo	Jul-13	Mar-14	Nov-14	Nov-15	May-16
VIIRS	Land Active Fires	Oct-12	Sep-13	Sep-14	Sep-15	Dec-15
VIIRS	Land Veg Index	Feb-13	Sep-13	Jun-14	Jan-15	Jan-16
VIIRS	Land Surface Reflectance IP	Feb-13	Sep-13	Jul-14	Jan-15	Jan-16
VIIRS	Ocean OCC / ACO	Jan-13	Nov-13	Jun-14	Jun-15	Jun-16
VIIRS	Sea Ice Char - Conc	May-13	Oct-13	Jan-14	Aug-14	Jan-15
VIIRS	Sea Ice Char - Age	May-13	Oct-13	Aug-14	Oct-14	Apr-15
VIIRS	Snow Cover - Binary mask	May-13	Oct-13	Jan-14	Aug-14	Jan-15
VIIRS	Snow Cover - Fraction	May-13	Oct-13	Aug-14	Aug-14	Jan-15
CrIS	SDR - Cal&Geo	May-12	Feb-13	Feb-14		
CrIS	EDR - AVTP, AVMP & AVPP	Aug-12	Mar-13	Jan-14	Jul-14	Jan-15
OMPS	SDR - Ozone TC EV	Mar-12	Mar-13	Feb-14		
OMPS	SDR - Ozone NP EV	Mar-12	Mar-13	Feb-14		
OMPS	SDR Ozone TC Cal	TBD	TBD	TBD		
OMPS	SDR Ozone NP Cal	TBD	TBD	TBD		
OMPS	SDR - Ozone TC Geo	Mar-12	Mar-13	Feb-14		
OMPS	SDR - Ozone NP Geo	Mar-12	Mar-13	Feb-14		
OMPS	EDR - First Guess IP	Jul-12	Mar-13	Dec-13	Feb-14	Jun-14
OMPS	EDR - Ozone TC	Jul-12	Apr-13	Dec-13	Feb-14	Jun-14
OMPS	EDR(IP) - Ozone NP	Jul-12	Apr-13	Jan-14	Mar-14	Jul-14



JPSS Initiative

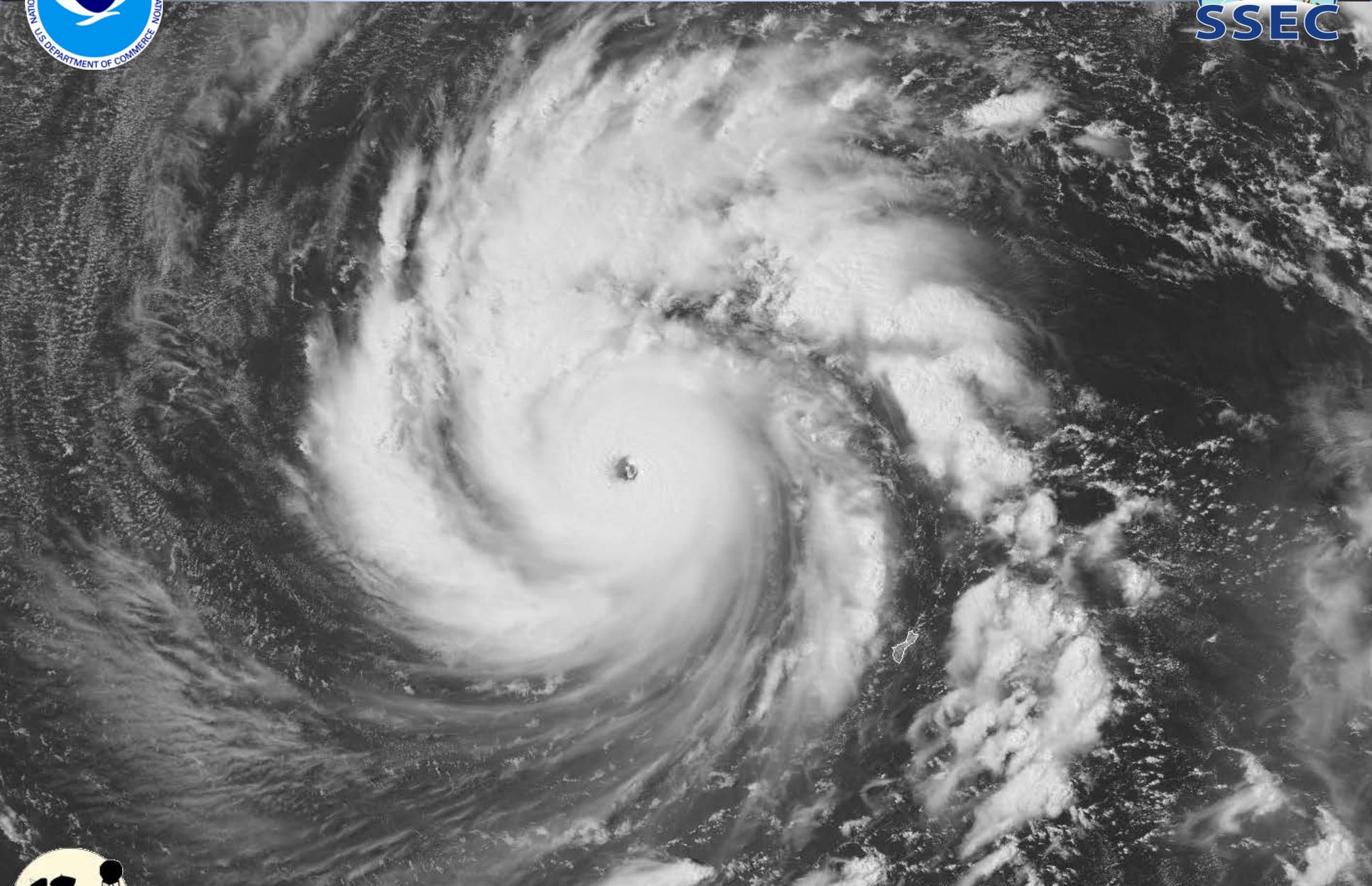
Joint Polar Satellite System User Assessments - 2013



- Articles from Monthly Science Seminars
- Articles on special events (Active Fire, NMFS Course)



Super Typhoon Francisco



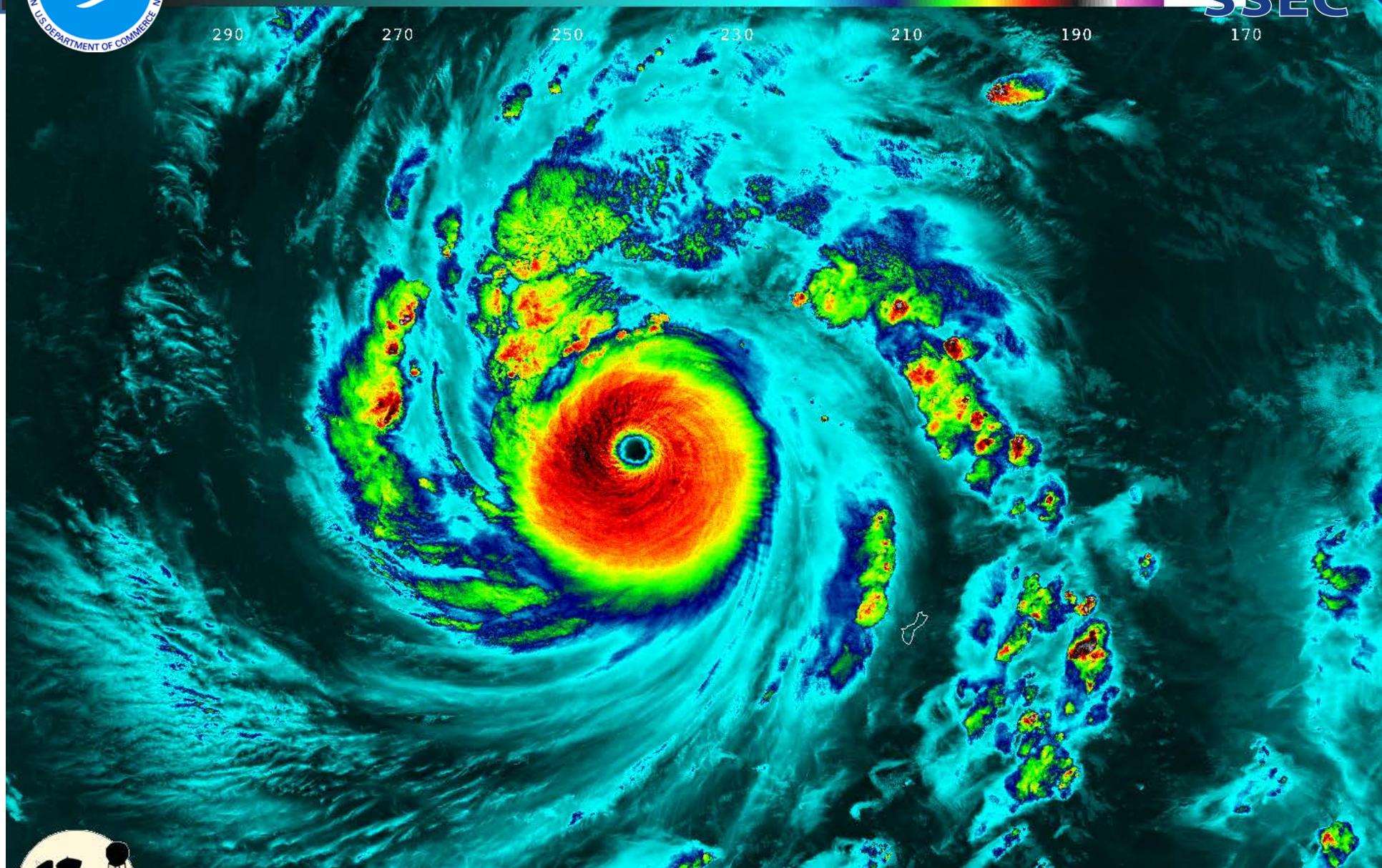
VIIRS 2013-10-18 15:48:09 GMT,... - Day Night Band



Super Typhoon Francisco



290 270 250 230 210 190 170

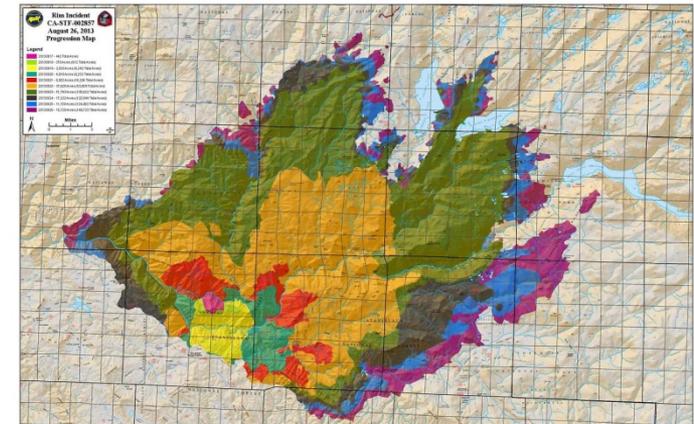
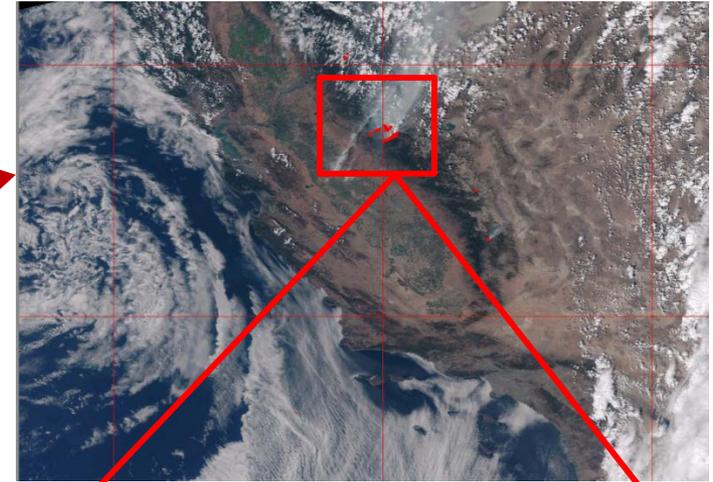
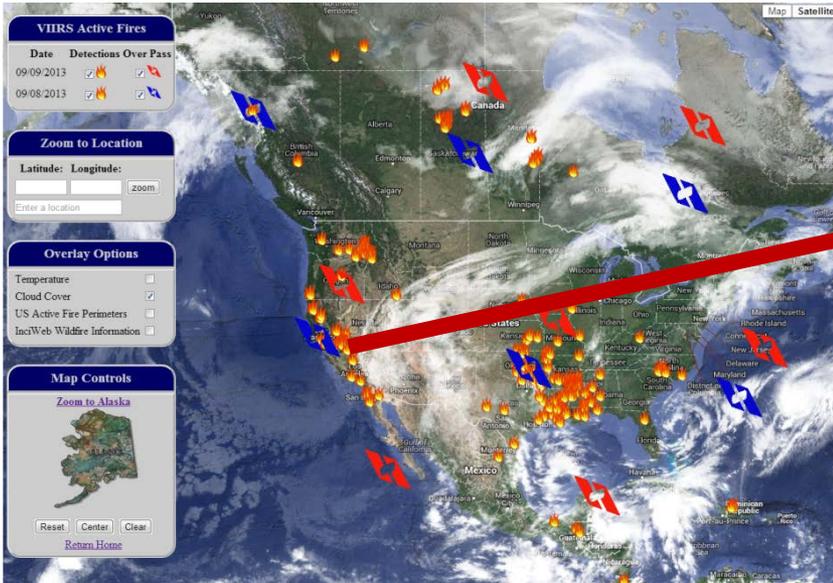


VIIRS 2013-10-18 15:48:09 GMT,... - I05 (11um) BT



JPSS Supporting Wildfire Detection through VIIRS Rim Fire Sep 2013

Active Fires Webpage

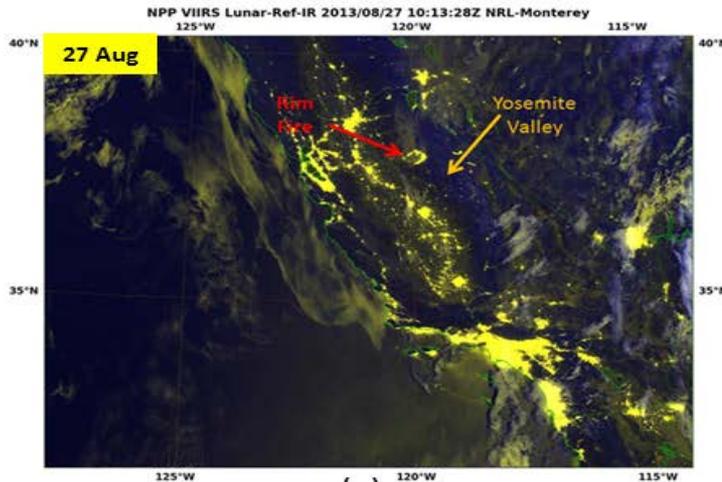


The National Weather Service and US Forest Service both depend on VIIRS data to predict, identify and monitor wildfires.

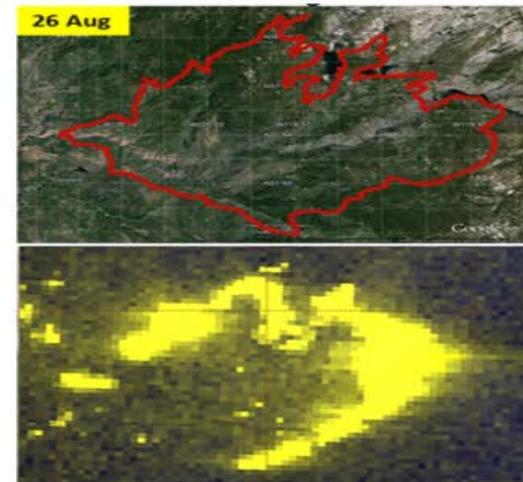
JPSS has funded development and implementation of the Active Fires program through its Proving Ground.

Arunas Kuciauskas JPSS PGRR Project

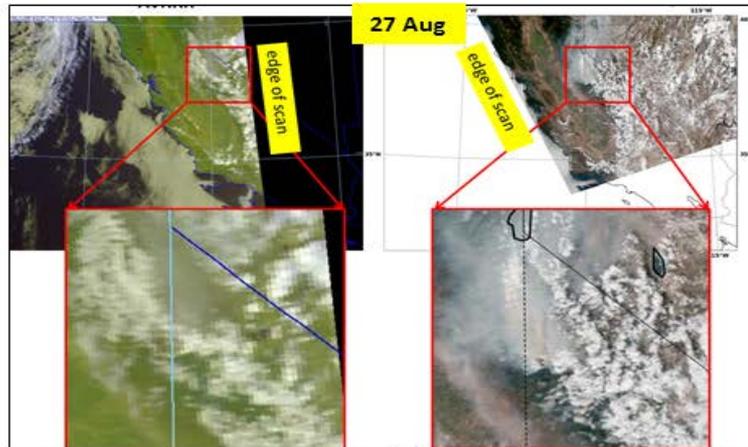
3CY2013



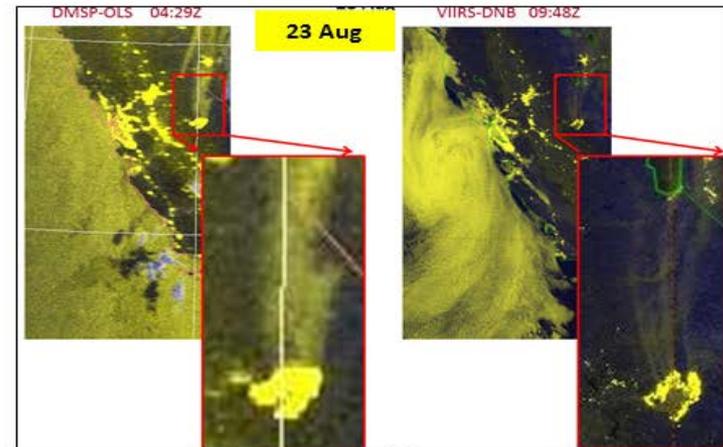
(a)



(b)



(c)



(d)

4-panel of VIIRS products that cover the Rim fire during August. Fig. 1 (a) presents a nighttime VIIRS DNB, IR with a lunar irradiance correction while Fig. 1 (b) compares the multi-fire agency “Inciweb” fire perimeter report (top) with the VIIRS product (bottom) described in (a). Fig 1 (c) compares true color edge of scan products between AVHRR (left) and VIIRS (right), and Fig. 1 (d) compares the nighttime products between the DMSP OLS (left) with the VIIRS product described in (a).



PGRR Project Initiatives

Visit to Active Fires

- Dr Evan Ellicott UofMD, member of NOAA VIIRS Active Fire Team
- Fires visited
 - West Fork Complex Fire – Jun 2013
 - Rim Fire – Sep 2013
- Arranged the NWS fire weather staff at the National Interagency Coordination Center (NICC) in Boise Idaho
- Interacted with NWS Incident Meteorologists, Fire Behavior Analysts from the US Forest Service, GIS analysts, and other fire incident decision support cadre.



Rim Fire





PGRR Project Initiatives

2013 NOAA Ocean Satellite Data Course

- Organized by Dr Cara Wilson – NMFS
- August 20-22, 2013 at Oregon State University (OSU) with the Cooperative Institute for Oceanographic Satellite Studies (CLOSS)
- 36 participants (NMFS, NOS, OSU and the private sector)
- Course Content
 - Basic information on environmental satellites
 - How to access and utilize VIIRS data through a variety of different protocols
 - Operational use of ocean color, sea surface temperature, sea surface height, ocean surface vector winds and salinity.
- Course Participant Feedback



PGRR Project Initiatives

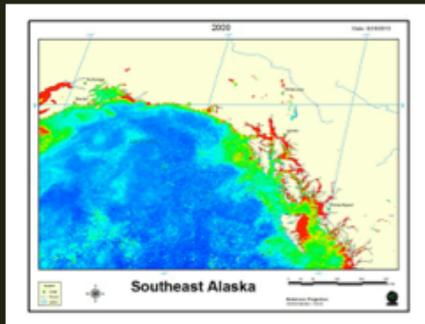
2013 NOAA Ocean Satellite Data Course



Developing ecological indicators for sablefish recruitment

Objectives

1. Support an ecosystem approach to management
2. \$ 142 million fishery for sablefish in U.S.
3. Develop indicators for sablefish recruitment
4. Use satellite color data to index chl-a, blooms
5. Quantify blooms in rearing areas
6. Link to future sablefish recruitment



Coastal rearing habitat for young sablefish

Sablefish (*Anoplopoma fimbria*)



Future:

Use satellite data to develop spatial and temporal indicators of ocean productivity for sablefish rearing areas.

Ocean survey results

High age-2 recruitment in 2002 was linked to high chlorophyll-a in the late summer in 2000.

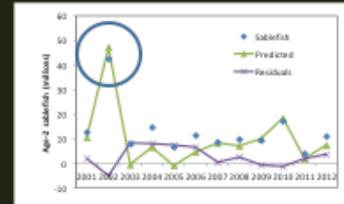


Figure 1. Age-2 sablefish modeled as a function of Chl-a (t-2), sea temperature (ST) (t-2), and age-2 sablefish (t-1) with data collected in situ, 1999-2010 (Martinson et al. 2013).

Model output

	ST(t-2)	Chl(t-2)	Sable(t-1)
Beta	0.37	1.16	-0.33
S.E.	0.14	0.14	0.11
t-test	2.59	8.14	-3.07
Prob(t)	0.03	0.00	0.01

Ellen Martinson, NMFS/AFSC Auke Bay Laboratories

One of the VIIRS usages from the 2013 NOAA Ocean Satellite Course. NMFS/AFSC uses satellite ocean color data as an ecological indicator in determining sablefish recruitment.



Satellite Data Assimilation for Tropical storm (SDAT)

SDAT website is developed and maintained by CIMSS Sounding Team:

Team leaders: Jun Li, Tim Schmit (NOAA)

Team members: Jinlong Li, Zhenglong Li, Pei Wang, Yong-Keun Lee

- Project focused on use or the regional numerical weather prediction (NWP) models (WRF - Weather Research and Forecasting, and/or HWRF – Hurricane WRF) and the advanced data assimilation methodologies (GSI, and/or EnKF).
- Data assimilated include both conventional and satellite observations.
- Satellite data assimilated
 - ATMS (Suomi-NPP)
 - AMSUA (POES N15, POES N18, MetOp-A, NASA AQUA)
 - AIRS (NASA AQUA),
 - IASI (MetOp-A),
 - MHS (POES N18, MetOp-A)
- Note: SDAT showed promising forecasts for Colorado precipitation - additional work to be done



Satellite Data Assimilation for Tropical storm (SDAT)

SDAT

Satellite
Data
Assimilation for
Tropical storm



[Home](#) [Forecasts](#)

Forecast

Model: wrf

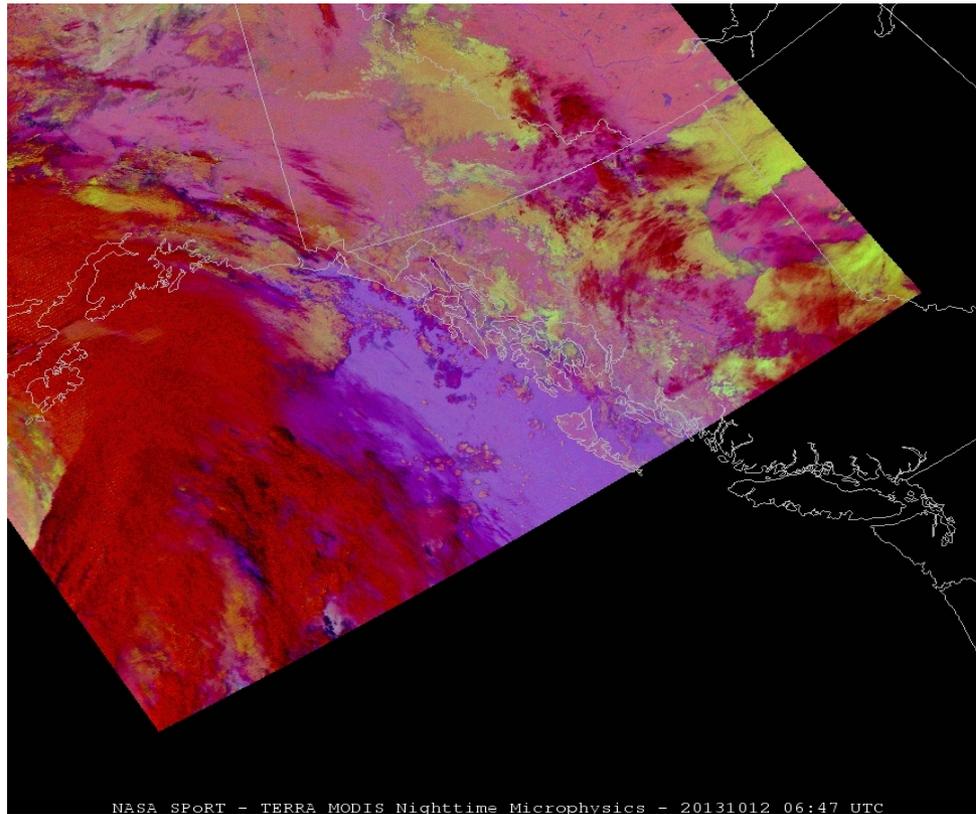
VARS	2013-10-04			2013-10-05			2013-10-06			2013-10-07		ANI		
	06Z	12Z	18Z	00Z	06Z	12Z	18Z	00Z	06Z	12Z	18Z			
Hurricane ▲	●	○	○	○	○	○	○	○	○	○	○	○	○	
Intensity-KAREN	0													<input type="button" value="Play"/>
Track	0													<input type="button" value="Play"/>
RH ▼	●	●	●	●	●	●	●	●	●	●	●	●	●	
SLP ▼	●	●	●	●	●	●	●	●	●	●	●	●	●	
T ▼	●	●	●	●	●	●	●	●	●	●	●	●	●	
TPW ▼	●	●	●	●	●	●	●	●	●	●	●	●	●	



SDAT for Tropical Storm Karen (4 Oct 2013)



SPORT Initiative



A MODIS RGB swath image produced on one of the Virtual Machines provided by GINA - over our Alaska Region–East domain, (only from the SPoRT website at this time). Image from 0647 UTC on 12 Oct 2013.

Eleven VIIRS-related posts on the SPoRT Blog (<http://nasasport.wordpress.com/category/viirs/>)

Four JPSS Proving Ground-related posts (<http://nasasport.wordpress.com/category/jpss-proving-ground/>)



JPSS Science Seminars - Past

Date	Presenters	Topic
November 19, 2012	Ivan Csiszar (STAR)	Suomi NPP (SNPP) Visible Infrared Imager Radiometer Suite (VIIRS) Active Fire Data for Fire Management and Fire Weather Applications
December 17, 2012	Liam Gumley and Kathy Strabala (CIMSS)	Status of the Community Satellite Processing Package (CSPP)
January 29, 2013	Carven Scott (NWS) and Eric Stevens (GINA)	Use of SNPP Data to Support Alaska Missions
February 19, 2013	Gary Jedlovec (SPoRT)	Support to NWS WFOs and Alaska
March 27, 2013	Fuzhong Weng (STAR)	SNPP Data Assimilation into TC Models
April 30, 2013	Mike Folmer (NCEP)	SNPP Data use in NCEP HPC, OPC, and NHC
May 29, 2013	Jim Jung (JCSDA)	ATMS/CrIS Data Assimilation into Models
June 26, 2013	Kent Hughes (STAR)	CoastWatch/OceanWatch Proving Ground: VIIRS Ocean Color. User Engagement, Quality Assessment, Product Development, Data Distribution Portal, and Chesapeake Bay Ecosystem Modeling
July 22, 2013	Elisabeth Weisz and Bill Smith (CIMSS)	SNPP Soundings in AK Region
August 19, 2013	Steve Miller (CIRA)	'Seeing the Light': Exploiting VIIRS Day/Night Band Low Light Visible Measurements in the Arctic
September 16, 2013	Chris Elvidge	VIIRS Nightfire and Nighttime Lights



JPSS Science Seminars

Future

Date	Presenters	Topic
October 21, 2013		Rescheduled to 24 Feb due to Govt Shutdown
November 18, 2013	Mark DeMaria	Joint JPSS-GOES-R Tropical Cyclone Satellite Data Assimilation Discussion
December 16, 2013	Arunas Kuciauska and Jeff Hawkins	NexSat JPSS Demonstration Project NRL-MRY VIIRS Data and Cal-Val Work
January 27, 2014	Cara Wilson	Facilitating end-user access to VIIRS data
February 24, 2014	Walter Wolf	Uniform Multi-Sensor Algorithms for Consistent Products
March 17, 2014	Alex Gilerson	Development of Neural Network algorithms for retrieval of chlorophyll-a in the Chesapeake Bay and other coastal waters based on JPSS-VIIRS bands
April 21, 2014	SPORT, Mike Pavolonis	Joint JPSS/GOES-R Low Cloud and Fog
May 19, 2014		
June 16, 2014		
July 21, 2014		
August 18, 2014		
September 15, 2014		
October 20, 2014		
November 17, 2014		
December 15, 2014		



Upcoming Conferences/Workshops

- **NWA Annual Meeting:**
 - 12-17 Oct 2013, Charleston SC
 - Bill Sjoberg gave Mitch Goldberg presentation on JPSS Program
 - Bill gave another briefing on JPSS Projects response to severe weather events
 - Others: Folmer, Gerth, Gravelle, Terborg, Line oral presentations
- **COMET Meeting:**
 - 6-7 Nov 2013, Boulder CO
 - Evaluate current work
 - Establish plans for 2014
- **AMS Annual Conference:**
 - “Extreme Weather—Climate and the Built Environment: New Perspectives Opportunities, and Tools.”
 - 2-6 Feb 2014, Atlanta GA
 - Goldberg, Sjoberg, Shontz oral presentations