

COLLADA™ Computing for Geophysical Applications

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WxAnalyst, Ltd.**

**Mark D. Spence
Hawaiian Airlines**



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**COLLADA Duck
Copyright 2006**

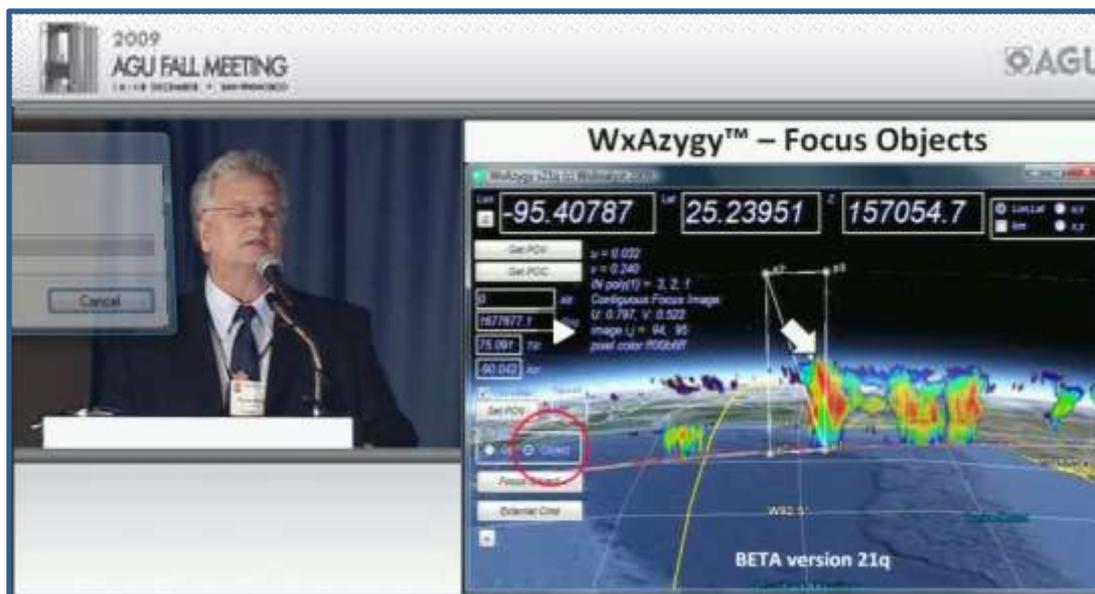
Sony Computer Entertainment Inc.

Earth Science Technology Forum 2011

GIS Function Coupling

1. GIS Function Coupling for Virtual Globes – 4D UI

NASA SBIR 2008-S6.04-9159 (LaRC)



<http://www.ccs.neu.edu/course/cs4300/HW4/HW4.html>

1

Patent Pending
12/585,025

Fall AGU
(2009)

WxAzygy®



2009

2010

2011
SBIR Phase 3

<http://wxanalyst.com/WxAzygy>

Game Changers

COLLADA Open Standard



Play Station 3 Duck demo

WMTeWu 2 videos

KHRONOS
GROUP

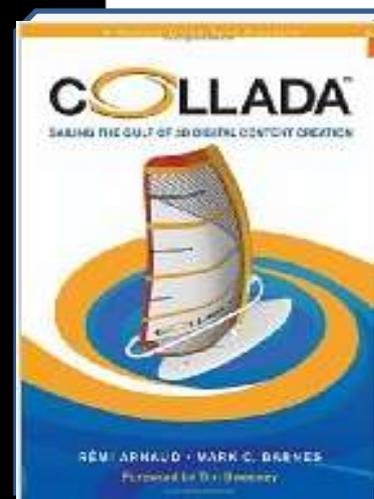
COLLADA 1.4.0 (Jan 2006)

Playstation 3 during E3 expo May 2005

© SONY Computer Entertainment



Phil Harrison



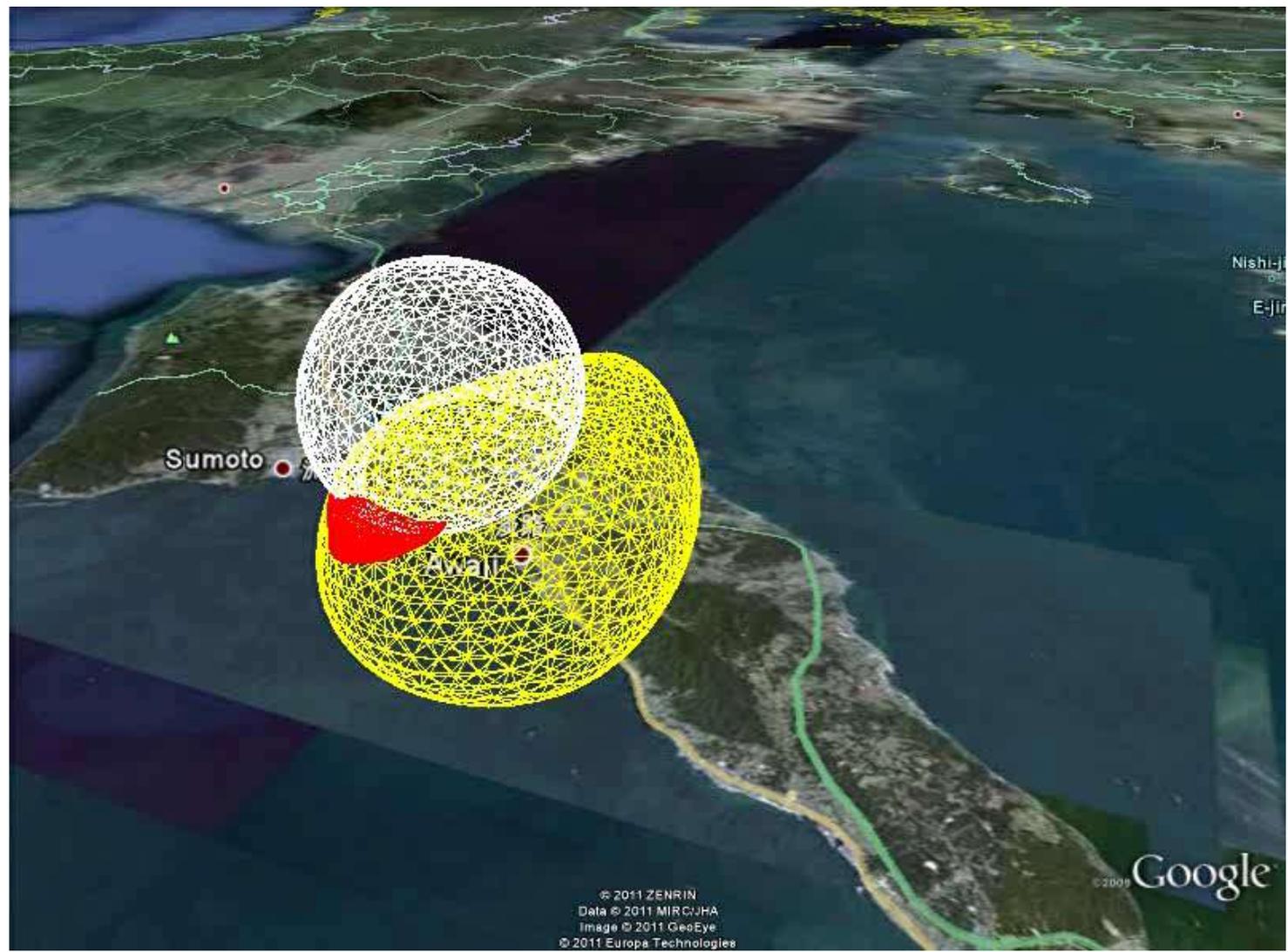
Rémi Arnaud



Video player controls: play button, volume icon, 1:43 / 3:32, CC icon, 240p resolution, share icon, and full screen icon.

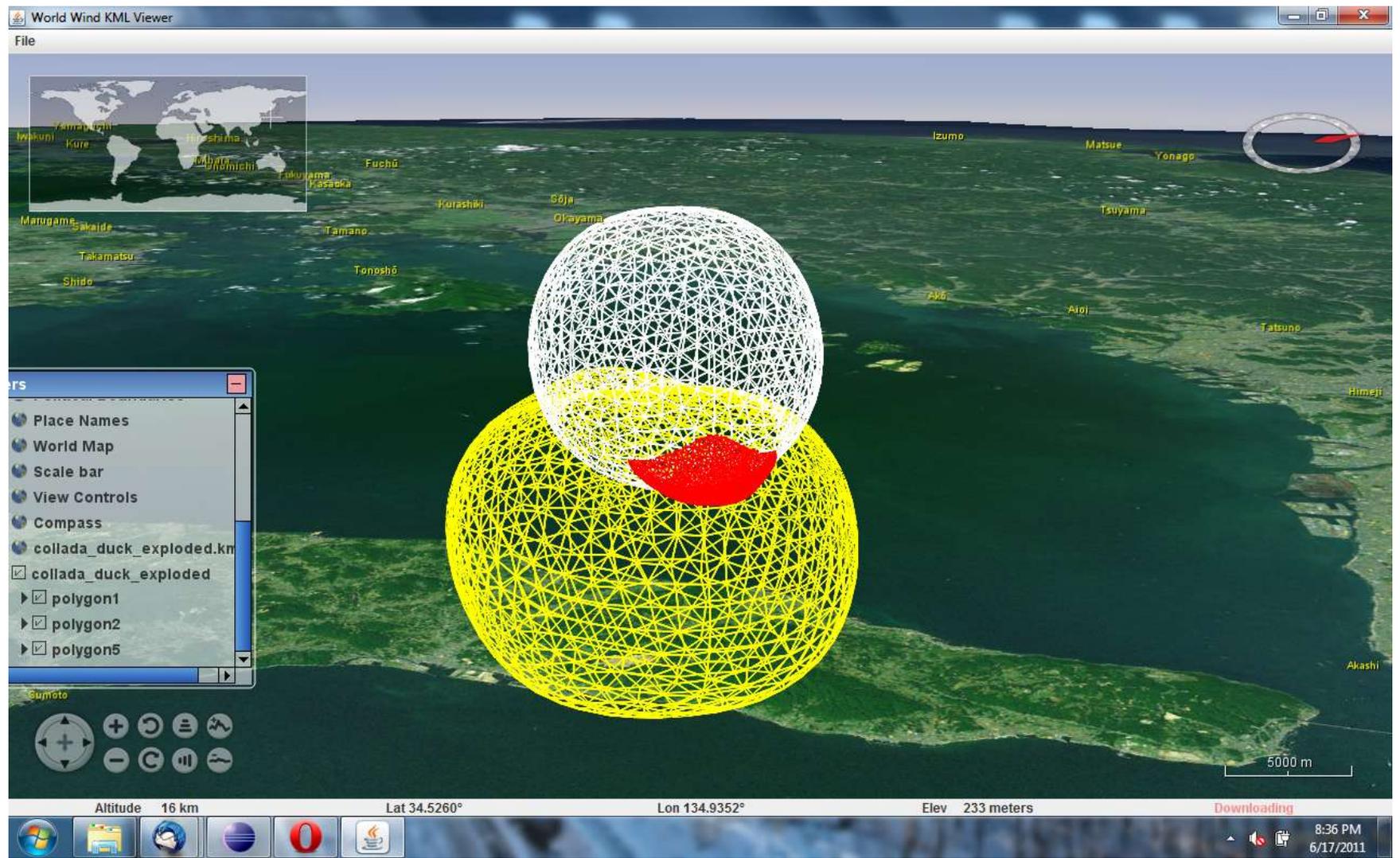
Game Changers

COLLADA™ 1.4.0 in Google Earth 4.x (Jan 2007)



Game Changers

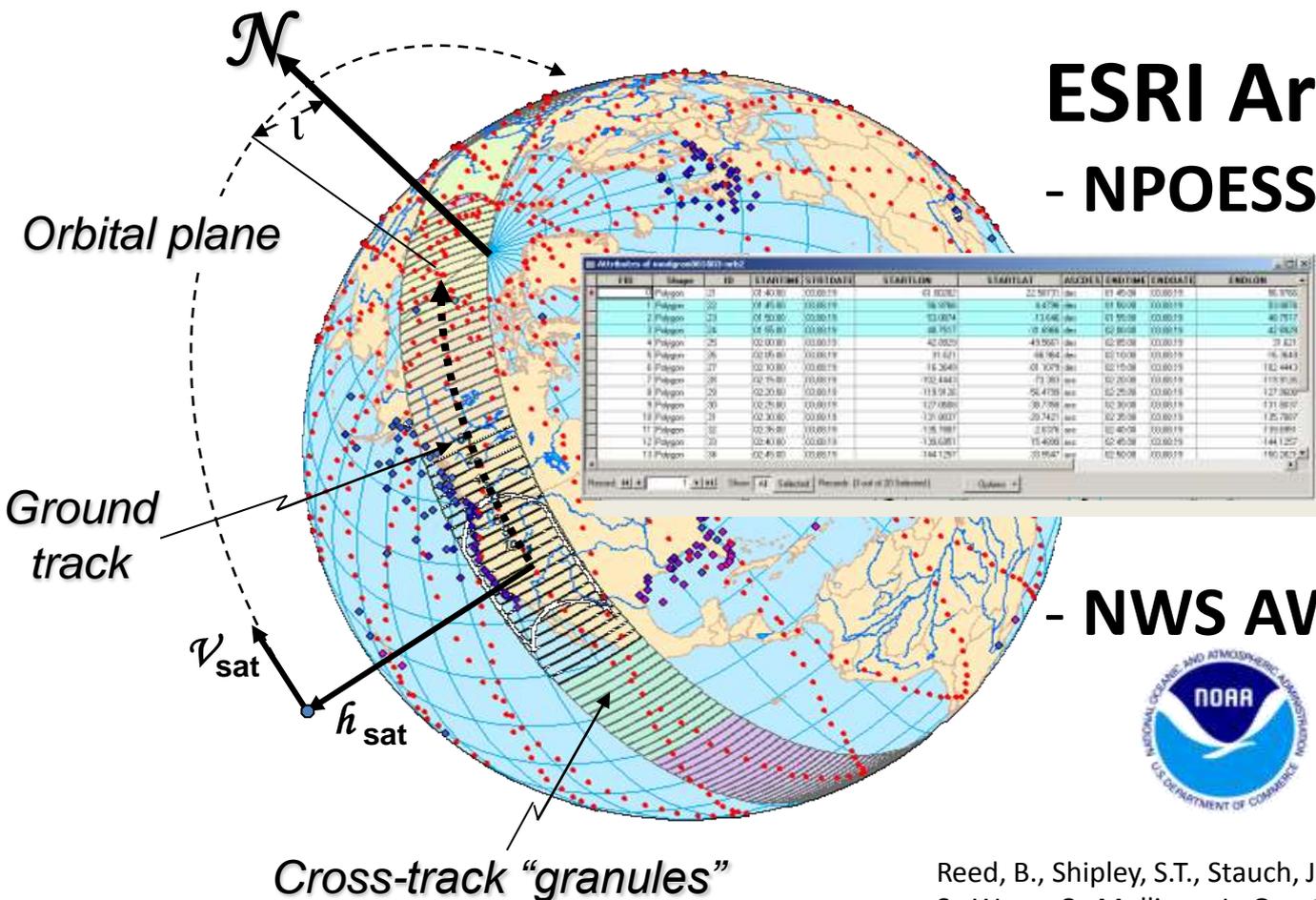
COLLADA™ 1.4.1 in NASA World Wind (2011)



Game Changers

Spatial-relational coupling

ESRI ArcGIS
- NPOESS Cal/Val (2004)



- NWS AWIPS (1995)

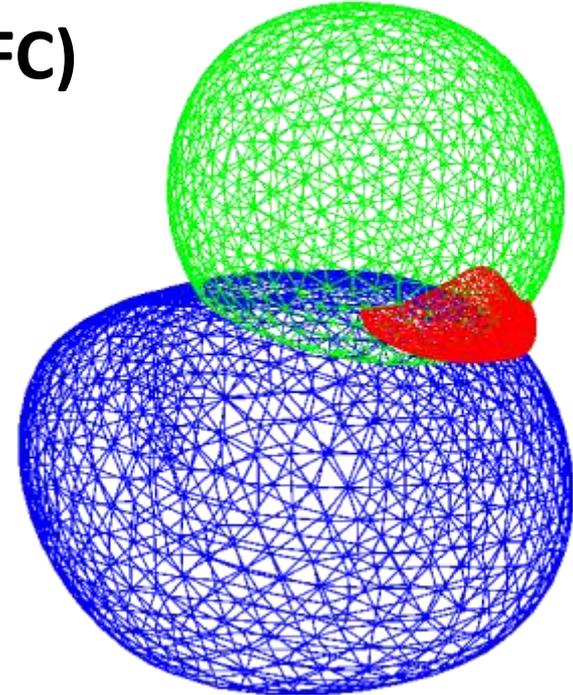


Reed, B., Shipley, S.T., Stauch, J., Gillespie, D., Walth, M., Young, S., Wang, C., Mulligan, J., Overton, J., Zajic, J., and A. Goldberg (2004), [Application of GIS for Data Quality Monitoring in the NPOESS Ground Data Processing System](#), 20th IIPS, Seattle, WA

COLLADA Computing

2. NASA SBIR 2010-S6.03-9634 (GSFC)

- *Phase 1 in Progress*
- COLLADA Math *in situ* VG
 - ✓ Intersection, Union, ...
- 4D UI for editing
- **size** ↓ and **speed** ↑



2

Phase 1 → 8/18/11, Phase 3 to be announced)

2011

Phase 2 tbd (Open Source)

Hurricane Dolly Demo

COLLADA Computing - Examine Structure

COLLADA Computing - Intersection

Clear the COLLADA Structures

YouTube



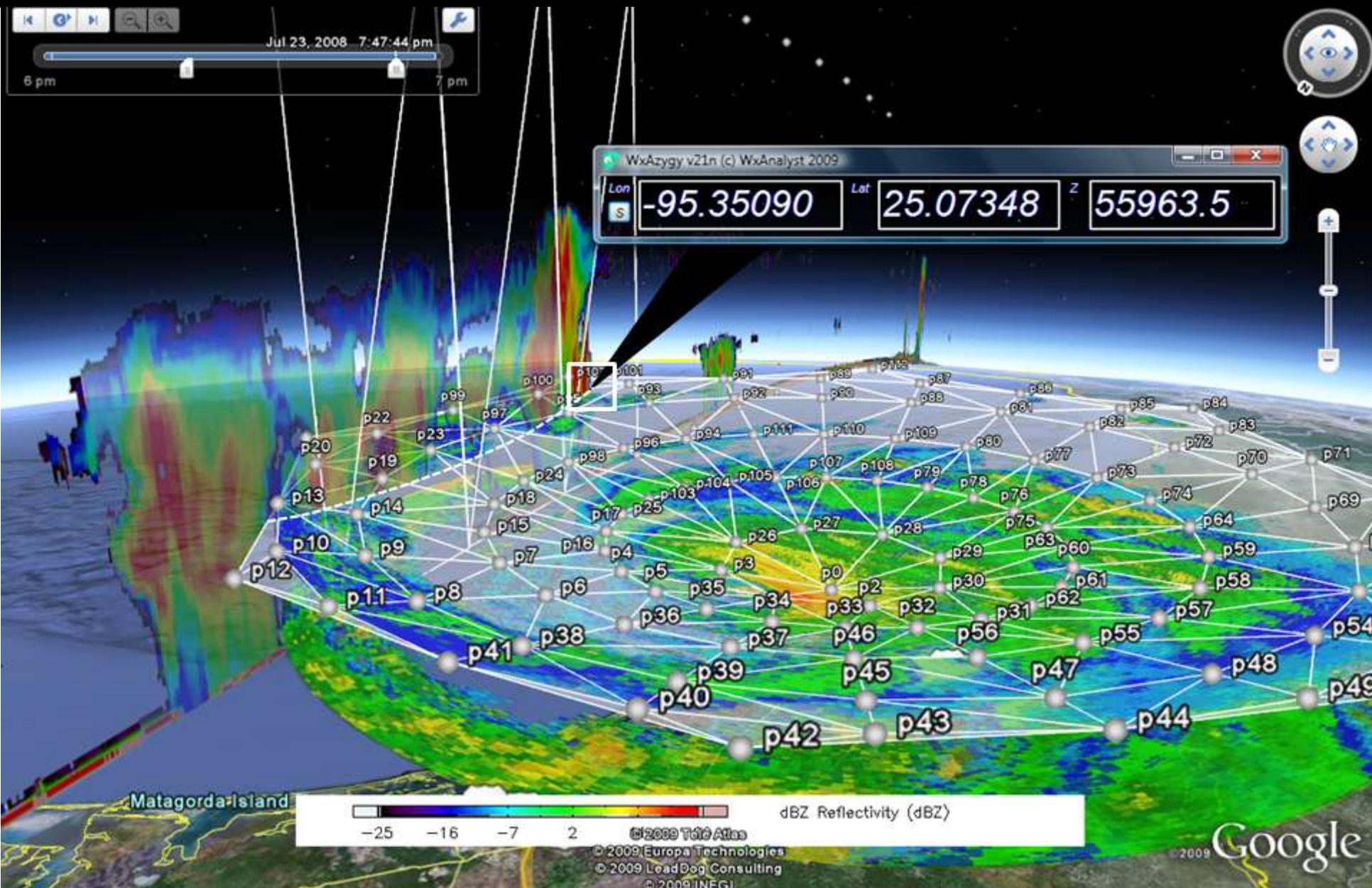
Navigation icons: Home, Back, Forward, Search, Refresh

Timeline: Jul 23, 2008 7:47:44 pm

Time range: 6 pm to 7 pm

WxAzygy v21n (c) WxAnalyst 2009

Lon	-95.35090	Lat	25.07348	Z	55963.5
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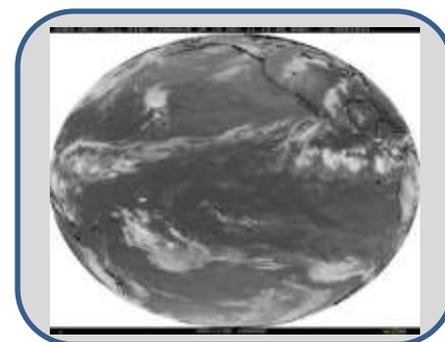
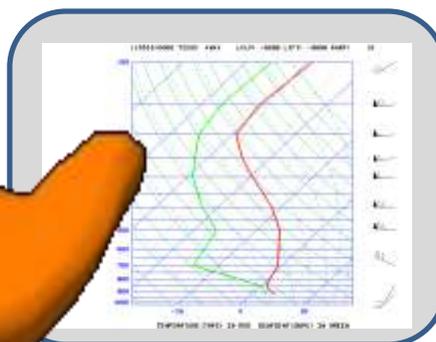
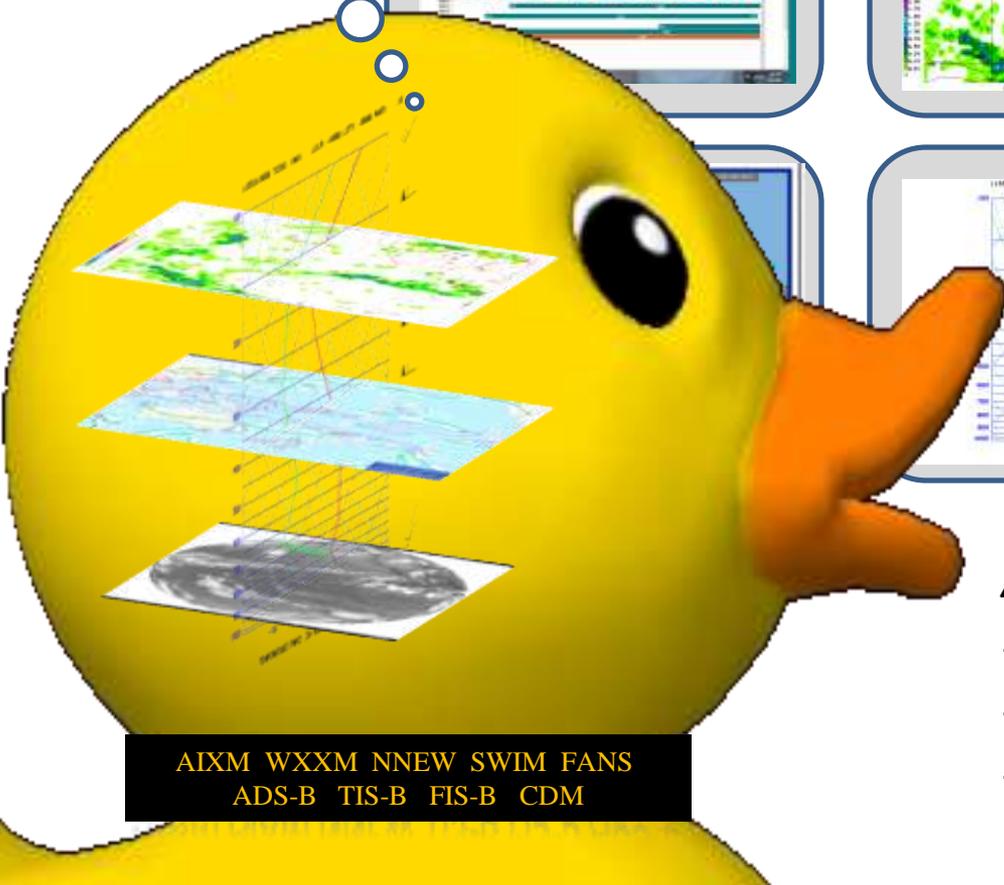
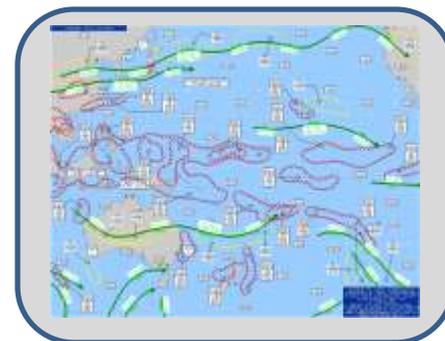
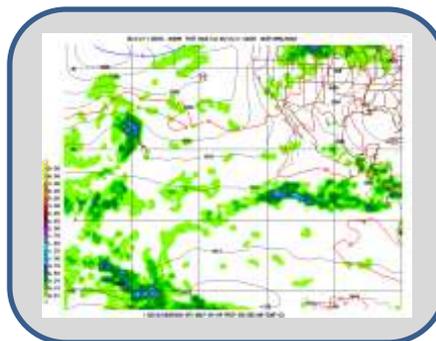


Navigation controls: 3D view, 2D view, zoom in, zoom out, pan, rotate





Qua?



Analyst integration & decision

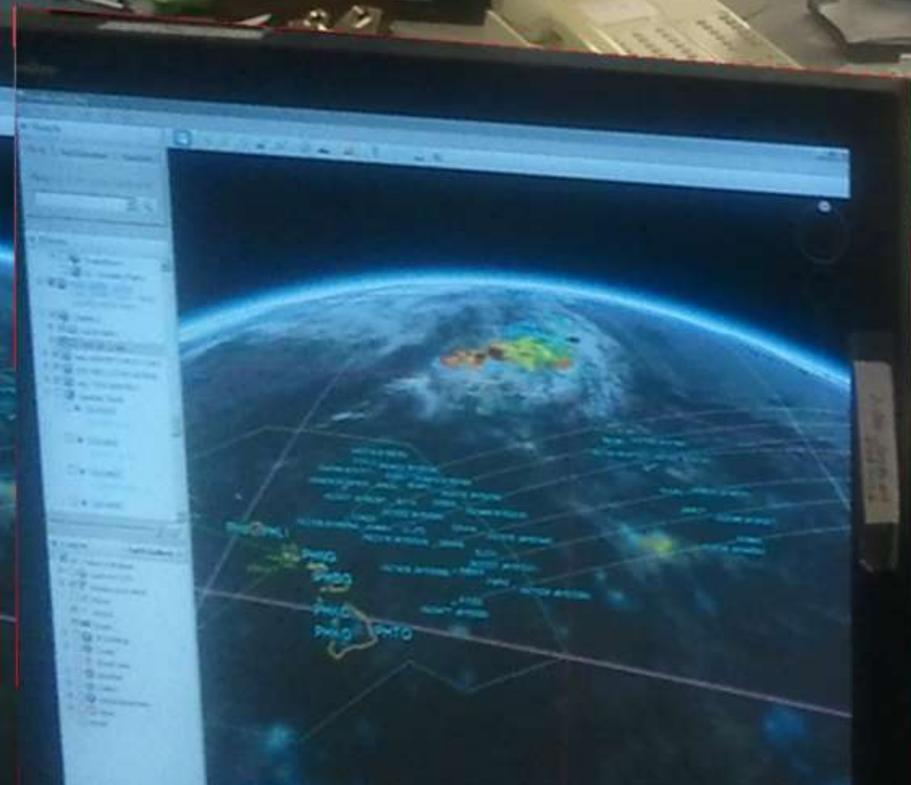
- Independent updating displays
- Multiple spatial projections
- Various times & averaging

AIXM WXXM NNEW SWIM FANS
ADS-B TIS-B FIS-B CDM



Hawaiian Airlines

Common Operating Picture



24x7 QICP Operations

**Preparing for NextGen
- NNEW, SWIM & OGC**

***NASA impacts air transport
- safety & performance***

“more timely” NASA assets

Aircraft Meteorological Data



This photo copyright (2010) Hawaiian Airlines, by permission

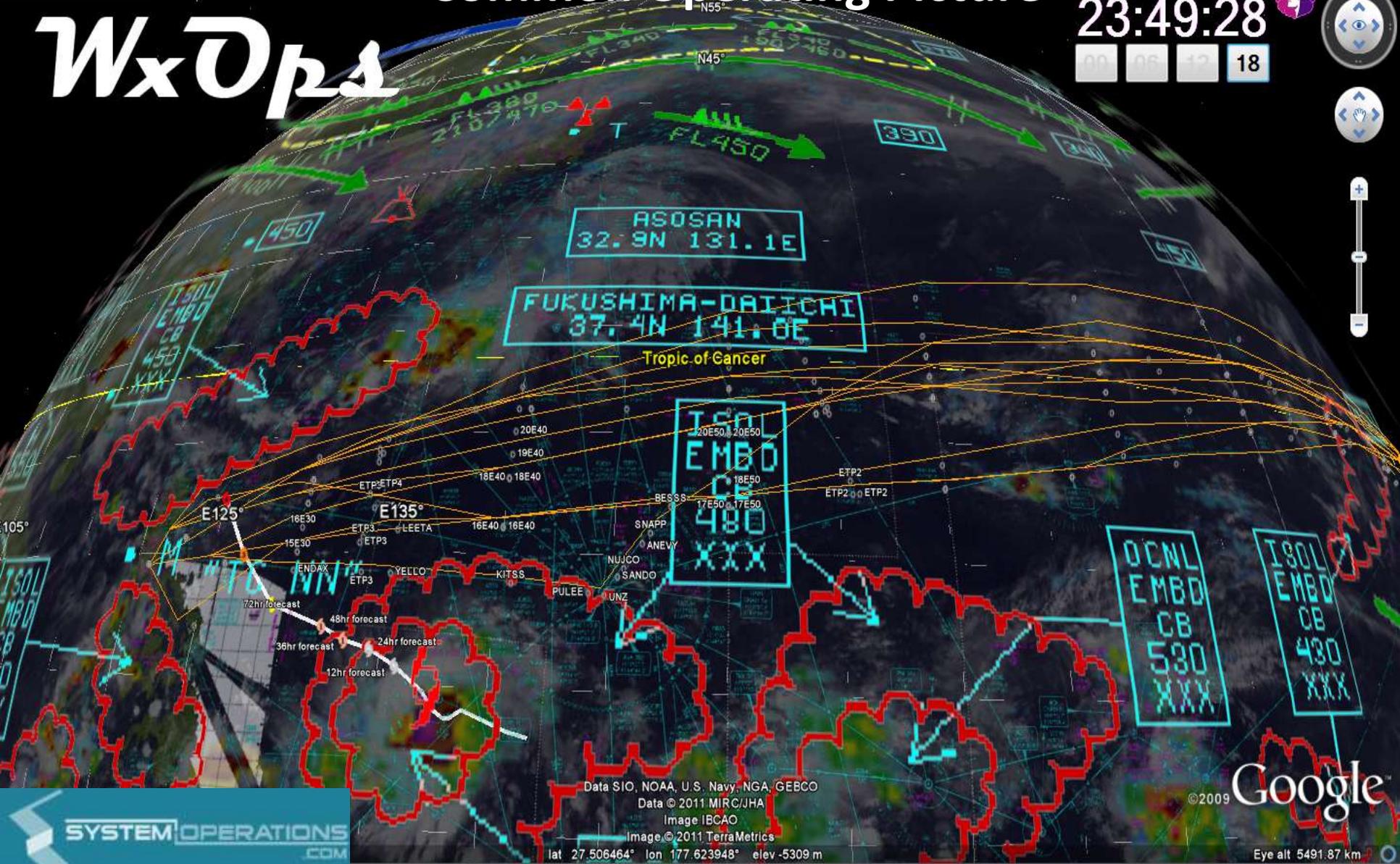


Hawaiian Airlines Common Operating Picture

WxOps

23:49:28

00 06 09 18



Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Data © 2011 MIRC/JHA
Image IBCAO
Image © 2011 TerraMetrics

©2009 Google

SYSTEM OPERATIONS .COM

Hawaiian WxAzygy(R)

lat 27.506464° lon 177.623948° elev -5309 m

Eye alt 5491.87 km

1:49 PM

Game Changers

Near Real Time Earth Science Data



National Aeronautics and Space Administration
LANCE



Home

welcome to lance

Data Products

data available

Imagery

imagery available

User Community

connect with users

Help

how to get help

[Acknowledgment](#)

[Acronyms](#)

[Contact Us](#)

[FAQ](#)

Welcome to LANCE

Land Atmosphere Near real-time Capability for EOS

LANCE provides access to near-real time (NRT) data products from the MODIS (Terra and Aqua), AMSR-E (Aqua), AIRS (Aqua), MLS (Aura), and OMI (Aura) instruments in less than 3 hours of the observation time. Imagery is also available through the [Rapid Response](#) system and fire alerts, data, and a web mapping application are available through the [Fire Information for Resource Management System \(FIRMS\)](#).

LANCE supports a wide variety of applications users who are interested in monitoring natural and man-made hazards. [Science quality products](#), that are generally available within 24 - 48 hours of observation, are available from other data centers to support science analysis. LANCE products are freely available but registration is required.

The following data centers are the elements that produce data for LANCE:



AMSR-E SIPS

AMSR-E SIPS generates a variety of L2A, L2B, and L3 products including surface soil moisture, rain rate, snow water equivalent, and sea ice concentration. The daily, tiled L3 products are updated incrementally as new data become available. Browse data products and sub-setting tools are planned.



Eruption of Puyehue-Cordón Caulle volcano, Chile

Terra/MODIS from June 7, 2011 at 15:10 UT

Announcements

May 31, 2011 - EDOS System Maintenance
Wednesday June 1, 2011

On Wednesday June 1, 2011 (DOY 152) beginning around 13:00 UT, EDOS will be performing system maintenance. The maintenance may result in delays in receiving Level 0 products and, therefore, may result in

Gulf Response in 2D

ERMA - Windows Internet Explorer

http://gomex.erma.noaa.gov/erma.html#x=-88.38501&y=29.16176&z=6&layers=5723+15964+16129+16123+7706+16118+16086+12302

WWW.GEOPLATFORM.GOV/GULFRESPONSE

Information Help Recent Data Find

Layers Legend Query Tool Zoom

Layers clear all reload

- Background
- BP Deepwater Horizon Oil Spill
 - Wellhead Surface Location
 - Deepwater Horizon Wreckage
- Areas of Operation
- Incident Milestones Dates
- BP Community Support
- Satellite, Radar, and Aerial Images of the Spill
- NRDA Workgroup Data
- Fishery Closures
 - NMFS
 - NMFS Fishery Reopened Area as of 6 PM Eastern Time 19 April 2011
 - NMFS Fishery Reopened Areas - Cumulative 19 April 2011
 - Tentative Sequence of Remaining Sampling Within the Federal Closed Areas as of 04/19/2011
 - NMFS Fishery Reopened Area for Royal Red Shrimping as of 12am EST 02 Feb 2011
 - NMFS Sampling Grid
- Alabama
- Mississippi
- Louisiana
- SCAT
 - SCAT Grids

Location: 23.86575°,-85.78125°

Environmental Protection Agency
Department of Homeland Security | University of New Hampshire | Privacy policy | Email Comments

Powered by ERMA®

WxAnalyst Gulf Response in 4D

Aug 13, 2010 11:59 pm



YouTube

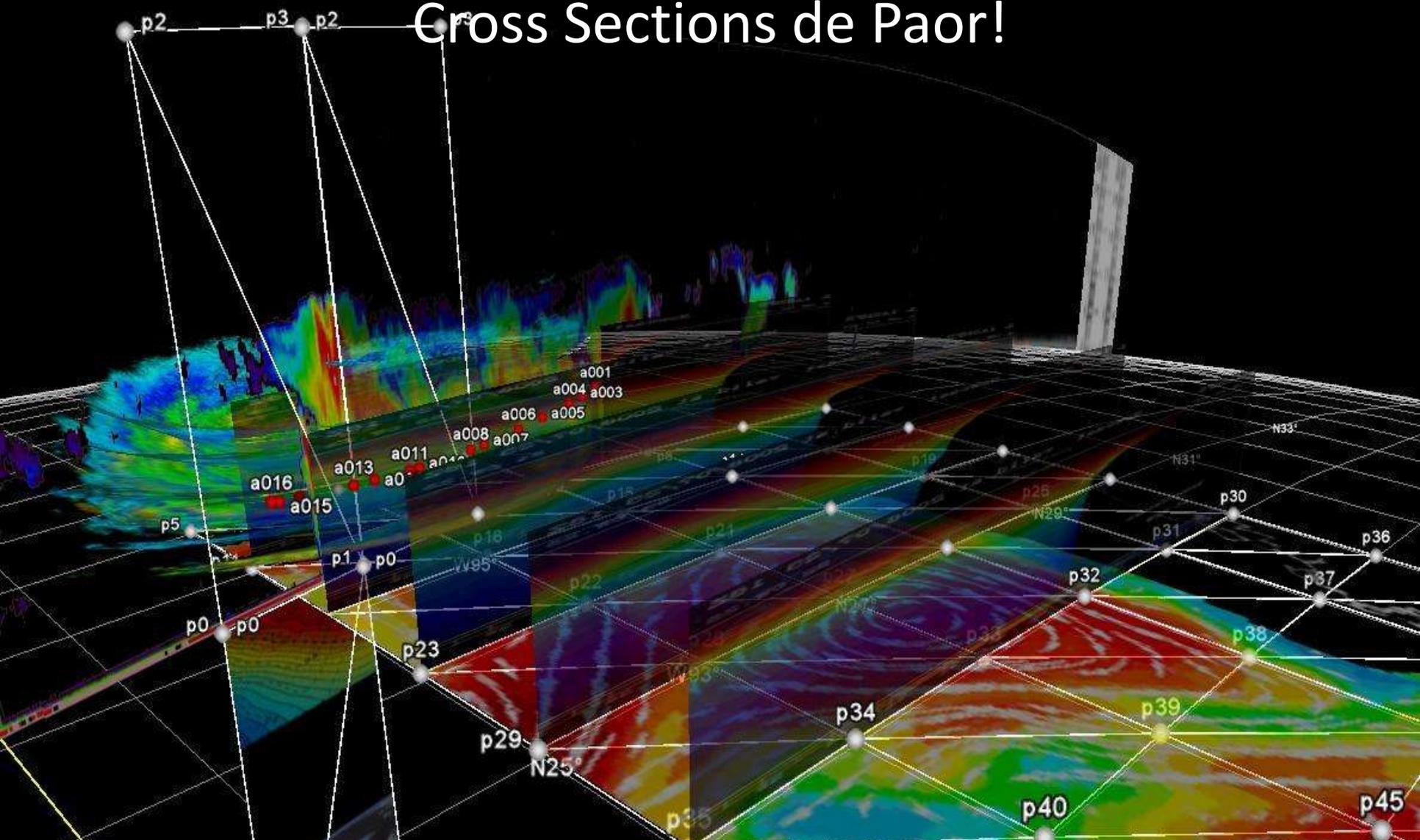
© 2011 Europa Technologies
Data: SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2011 Google
© 2011 INEGI

© 2009 Google

N12.5° lat 20.387874° lon -85.367044° elev -4604 m

Eye alt 1666.53 km

Cross Sections de Paor!



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image © 2010 DigitalGlobe

© 2010 Cnes/Spot Image

Image USDA Farm Service Agency

lat 28.939896° lon -96.355793° elev -15 m

©2009 Google

Eye alt 325.48 km

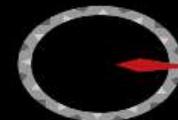
COLLADA in NASA World Wind Java

World Wind KML Viewer

File



“from outer space to in your face”
- Dan Gordon, Autometric



Layers



**“up in the air, way out in space,
deep down below, all over the place.”**



200 Km

Altitude 2,714 km Lat 12.1763° Lon -105.8402° Elev -3,312 meters