

The SSEC/CIMSS Web Map Service

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Outline

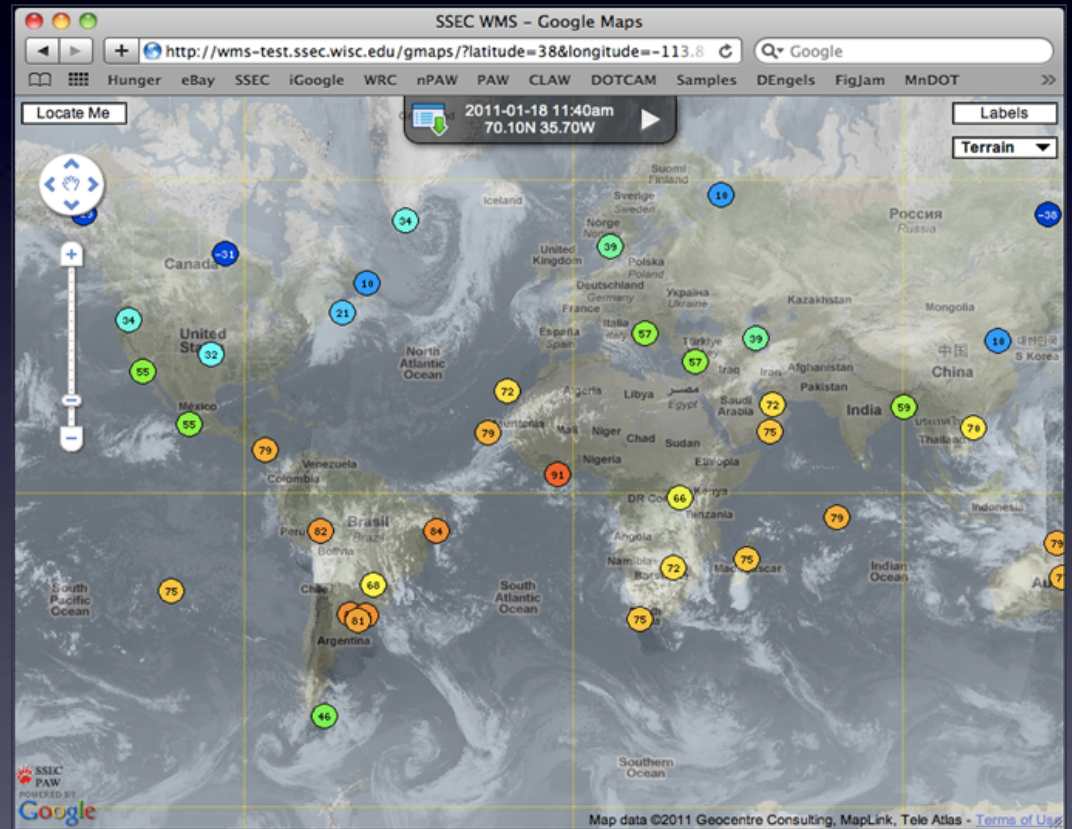
- Overview
- System architecture
- Example web interfaces
- Example products
- Summary
- Real-Time Demo

Why use a WMS?

- Open Geospatial Consortium (OGC) compliant Web Service.
- Ingest and process a myriad of data types with different temporal, spatial, and spectral scales and produce a suite of standard outputs.
- The outputs are independent of the client application (web browser, mobile device, Google Earth, etc.).
- The outputs have scalable complexity appropriate for audiences ranging from scientists to forecasters to pilots to policy makers.
- Output composites are easily generated by combining multiple layers from single or multiple server sources.


WMS Features

- Dynamic roam and zoom
- Product compositing
- Transparency
- Output is scaled to the display device
- Tile caching



Animation Control

- Adapts to varying temporal resolutions
- Transitions from current to future displays
- Author Configurable loop controls



<http://wms-test.ssec.wisc.edu>

URL Key Descriptions
key=default [possible values]

products: List of products with optional opacities
products=conusir.50,nexrcomp.75
center: Latitude and longitude at center of map
center=38,-97
zoom: Zoom level of map
zoom=5

mode: Rendering mode
mode=shape [shape|tile|flat]

time: Anchor date and time for animation
time=2011-01-19 19:16:00
timespan: Animation time span around anchor
timespan=-1h,0
timestep: Time step for each animation frame
timestep=15m
timebuffer: Add buffer time to product start and end
timebuffer=0,1h
timerange: Force a given absolute time range
timerange=timeStart,timeEnd
timeproduct: Use absolute product times for animation
timeproduct=

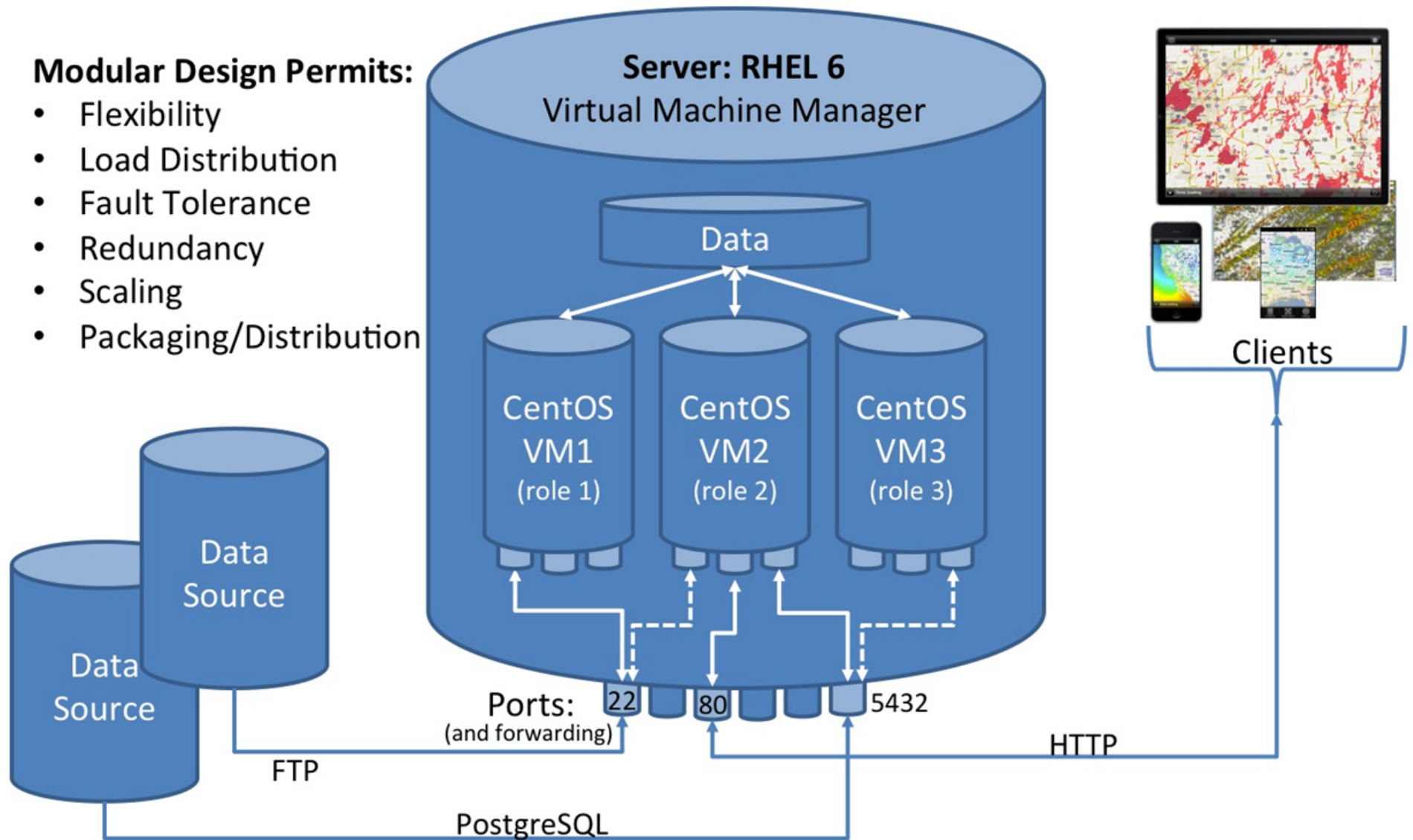
Absolute times are specified (in UTC) as:
YYYY-MM-DD HH:MM[:SS]
Relative times are specified as:
[-][0-9][w|d|h|m] (weeks, days, hours, minutes)

OK

System Architecture

Modular Design Permits:

- Flexibility
- Load Distribution
- Fault Tolerance
- Redundancy
- Scaling
- Packaging/Distribution




Web Apps

SSEC WMS Map Server Project

http://wms.ssec.wisc.edu/

Custom User Interfaces

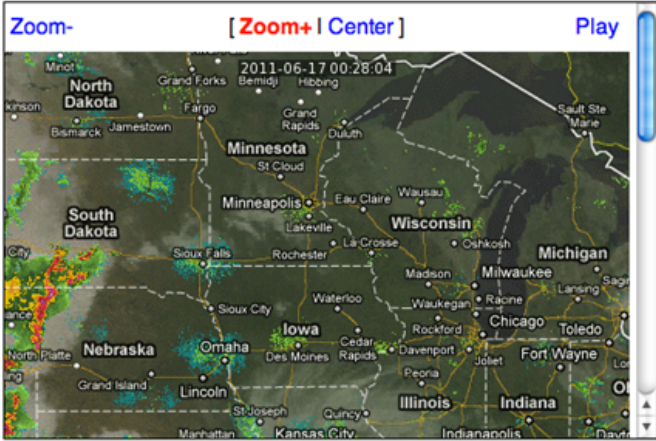
Modern Browsers



[Open in new window](#)

- Uses Google Maps and JavaScript to build a rich interface
- Works on all modern browsers and many mobile devices

Legacy Phones



[Open in new window](#)

- Uses HTML and hyperlinks to build a simple interface
- Works on any browser than can display GIF/Animated GIF

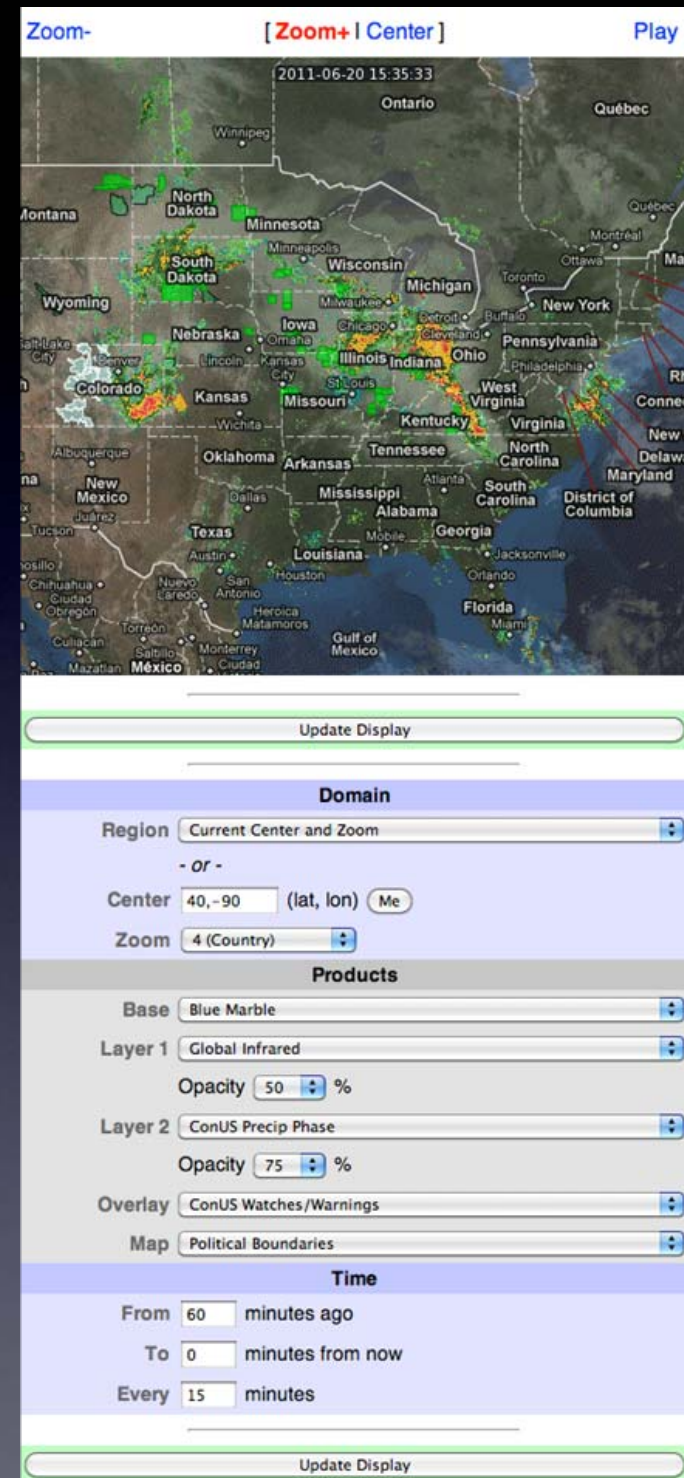
Google Maps

Simple Interface

<http://wms.ssec.wisc.edu>

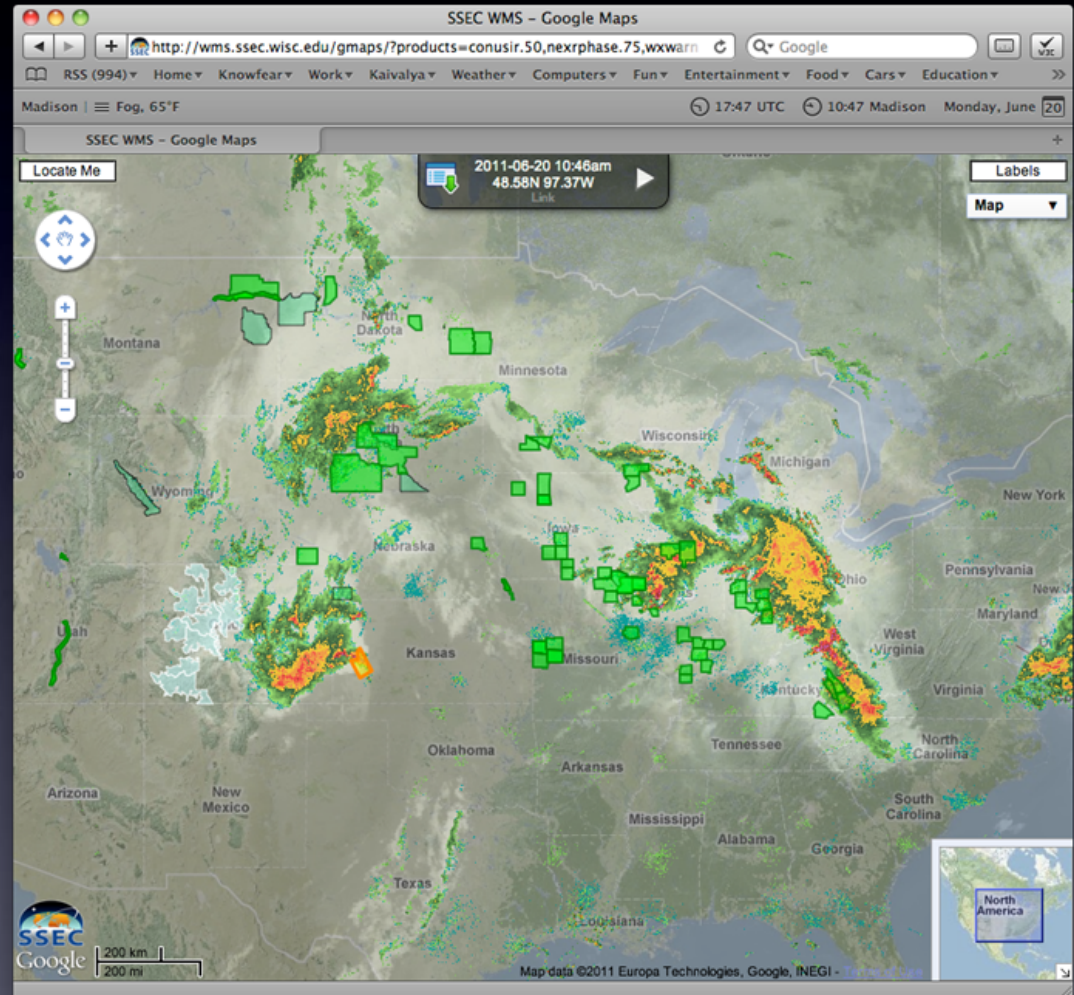
Simple

- GIF or Animated GIF
- No Javascript
- Image is compressed and converted by server
- Works on wide range of clients
- Faster download
- No dynamic zoom, roam or popups



Google Maps

- Manages tiles served from WMS
- Dynamic zoom and roam
- Cached tiles
- Other APIs (Bing, Virtual Earth) are possible



Product Manager

- Lists current released products
- Ingest status of individual products
- Inspection tool

SSEC WMS Product Manager

wms.ssec.wisc.edu
01:11:44 up 146 days, 4:02, 1 user, load average: 5.56, 6.50, 6.96

Product List

Summary

48 products

44 on time
0 late
4 static
6 seeding cache

Link	Product	Status	Data Age	Cache Info
	24hrprecip 24hrprecip	6m		277 tiles in 249s (0.9s/t)
	aquafalsecolor MODIS False Color (AQUA)	2h		277 tiles in 57s (0.2s/t)
	aquatruecolor MODIS True Color (AQUA)	2h		277 tiles in 48s (0.2s/t)
	BRDF MODIS Clear View	2d		277 tiles in 133s (0.5s/t)
	ci Convective Initiation	2m		Running for 99s
	cimssdpicapema	7m		

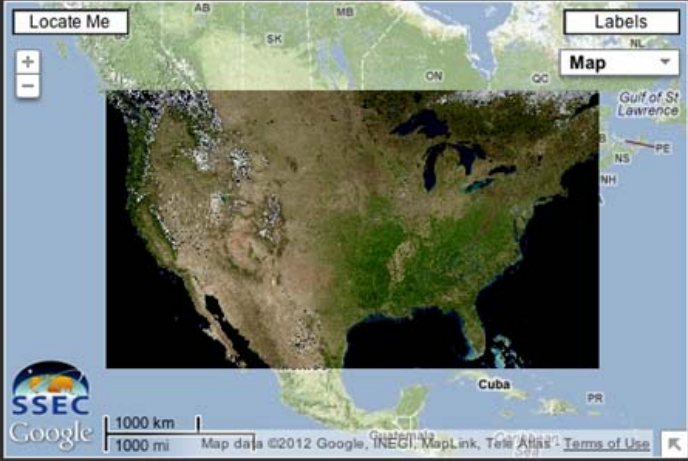
<http://wms.ssec.wisc.edu/manager>

Product Manager

SSEC WMS Product Manager WMServer 1.3.0-RC-WISC-2011
14/02/28 up 149 days, 17:13, 6 users, load average: 3.18, 2.31, 2.01

MODIS Clear View

Last received: 2012-05-04 13:34:08 (52m ago)



Product includes 336 time steps spanning
2011-05-06 12:00:00 to 2012-05-03 12:00:00

Product:
id: BRDF
name: MODIS Clear View
description: MODIS Clear View
dates: 336
times: 336
files: 336
type: tile
enhancement:
offsite:
imageType: png24
opacity: 100
drawOrder: 1
maxZoom: 9
keepCount: 0
keepHours: 8760
minutes: 4320

Google Maps:
<http://wms.ssec.wisc.edu/gmaps/?products=BRDF>

Simple Image:
<http://wms.ssec.wisc.edu/simple/?products=BRDF>

WMS GetCapabilities:
http://wms.ssec.wisc.edu/cgi-bin/mapserv?map=/home/wms/data/mapfiles/BRDF_map&request=GetCapabilities&service=wms&version=1.3.0

WMS GetMap:
http://wms.ssec.wisc.edu/cgi-bin/mapserv?map=/home/wms/data/mapfiles/BRDF_map&request=GetMap

cimssdpiozone 17m
DPI Ozone 276 tiles in 72s (0.3s/t)
Inspect Edit

<http://wms.ssec.wisc.edu/manager>

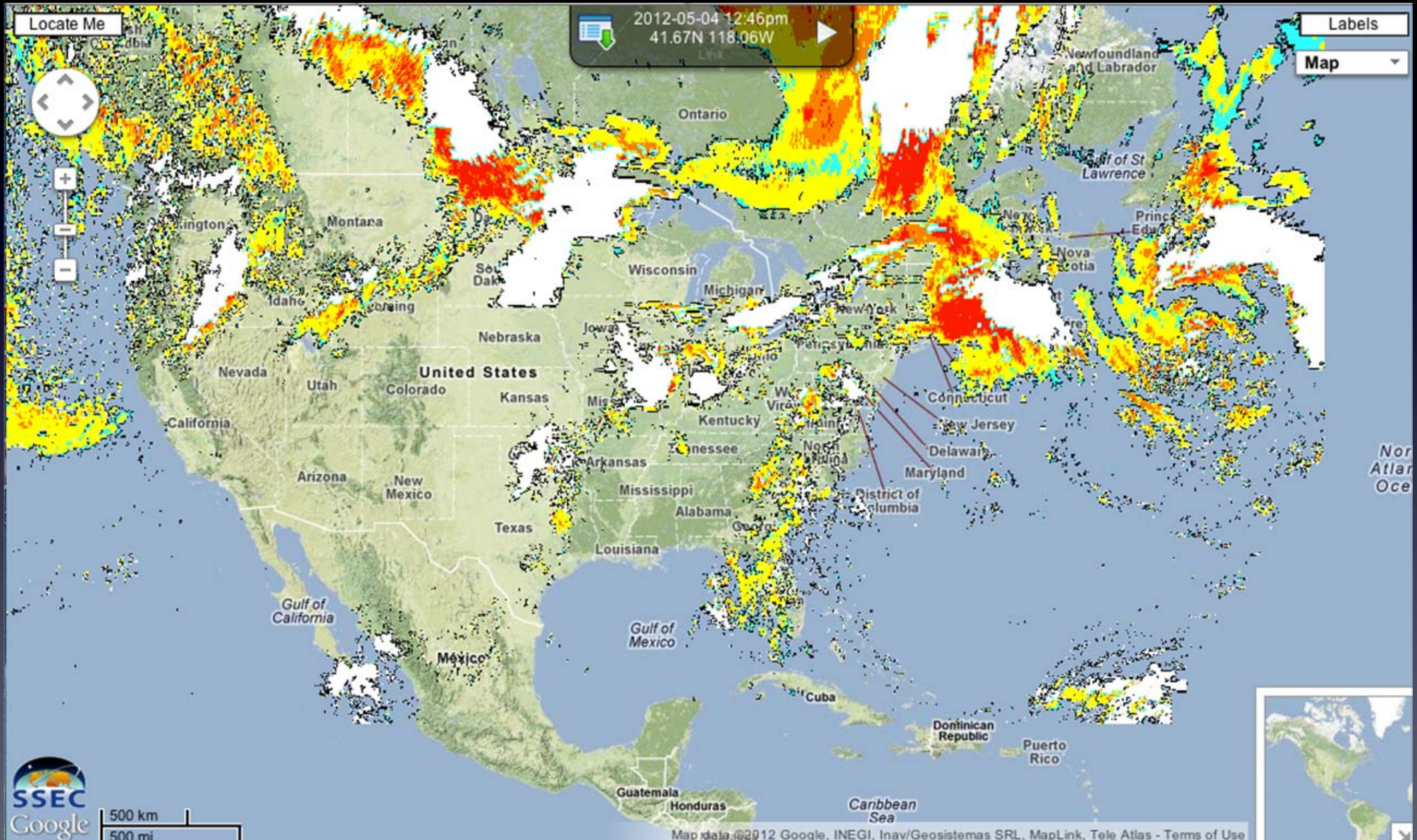
CIMSS

GOES Sounder Products



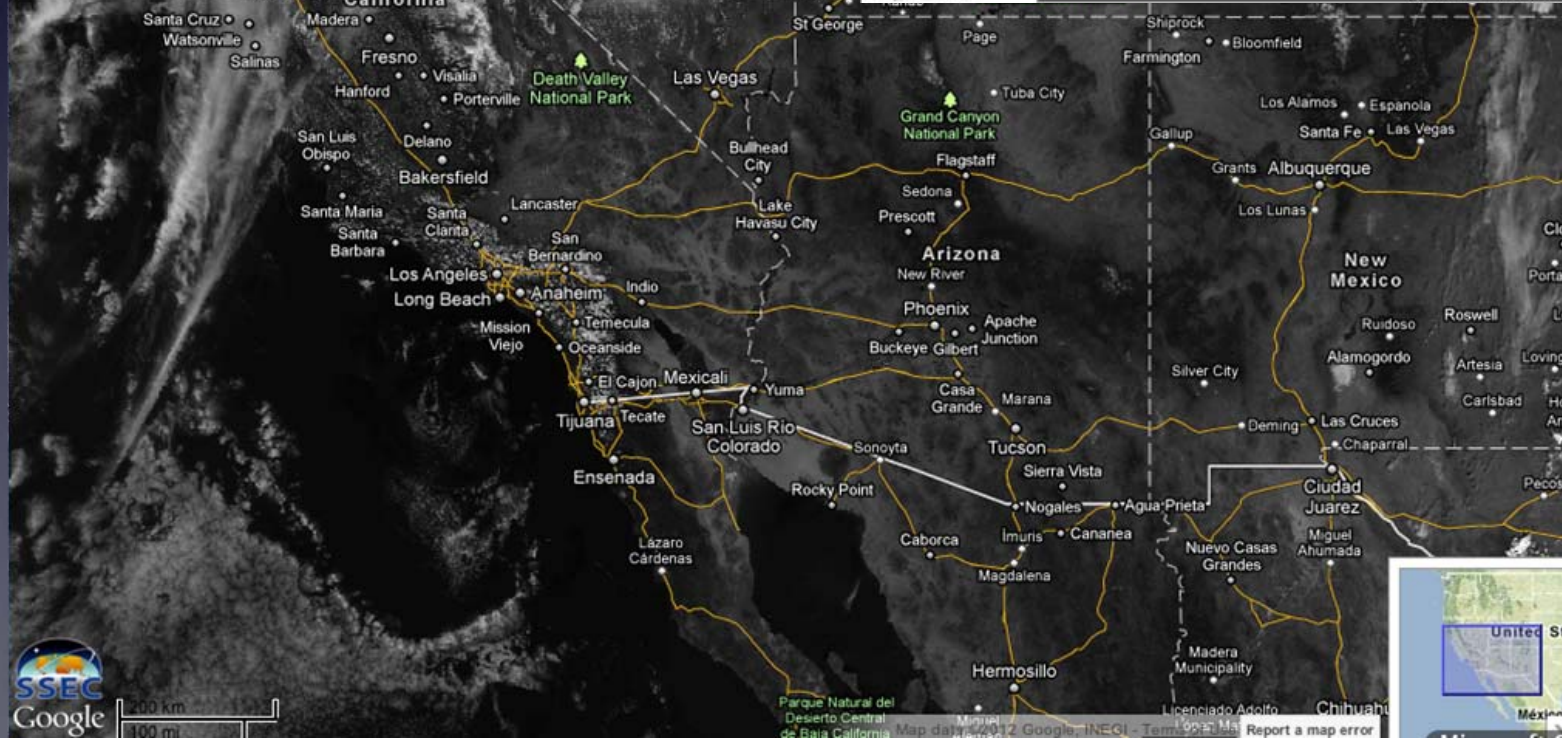
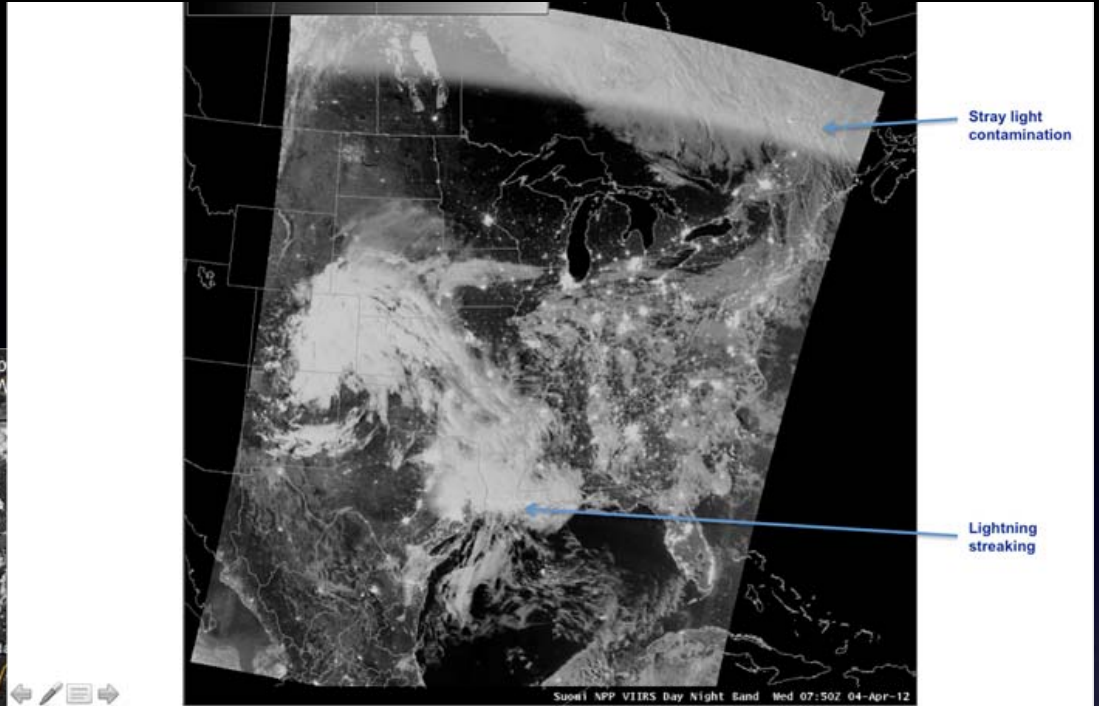
NASA Langley

Icing



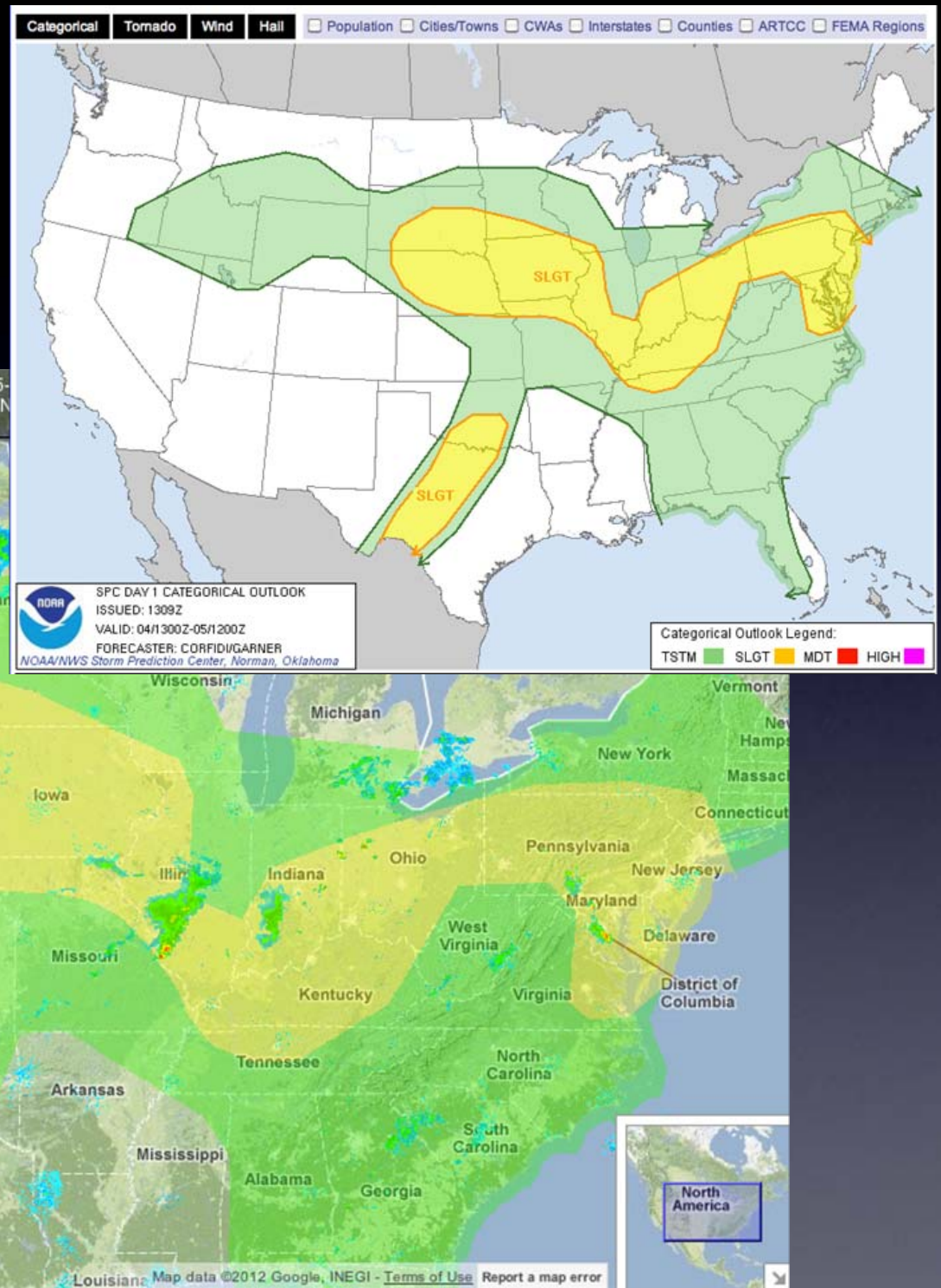
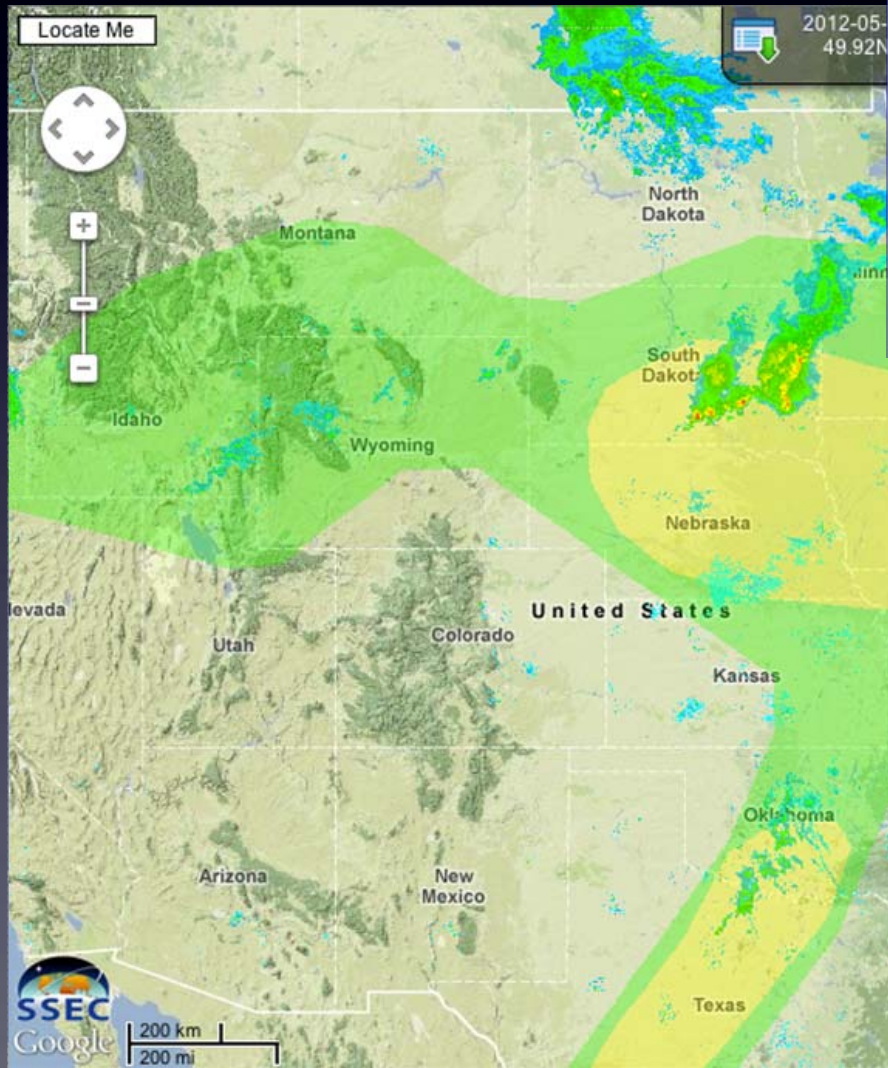
CSPP

VIIRS Granule Composites



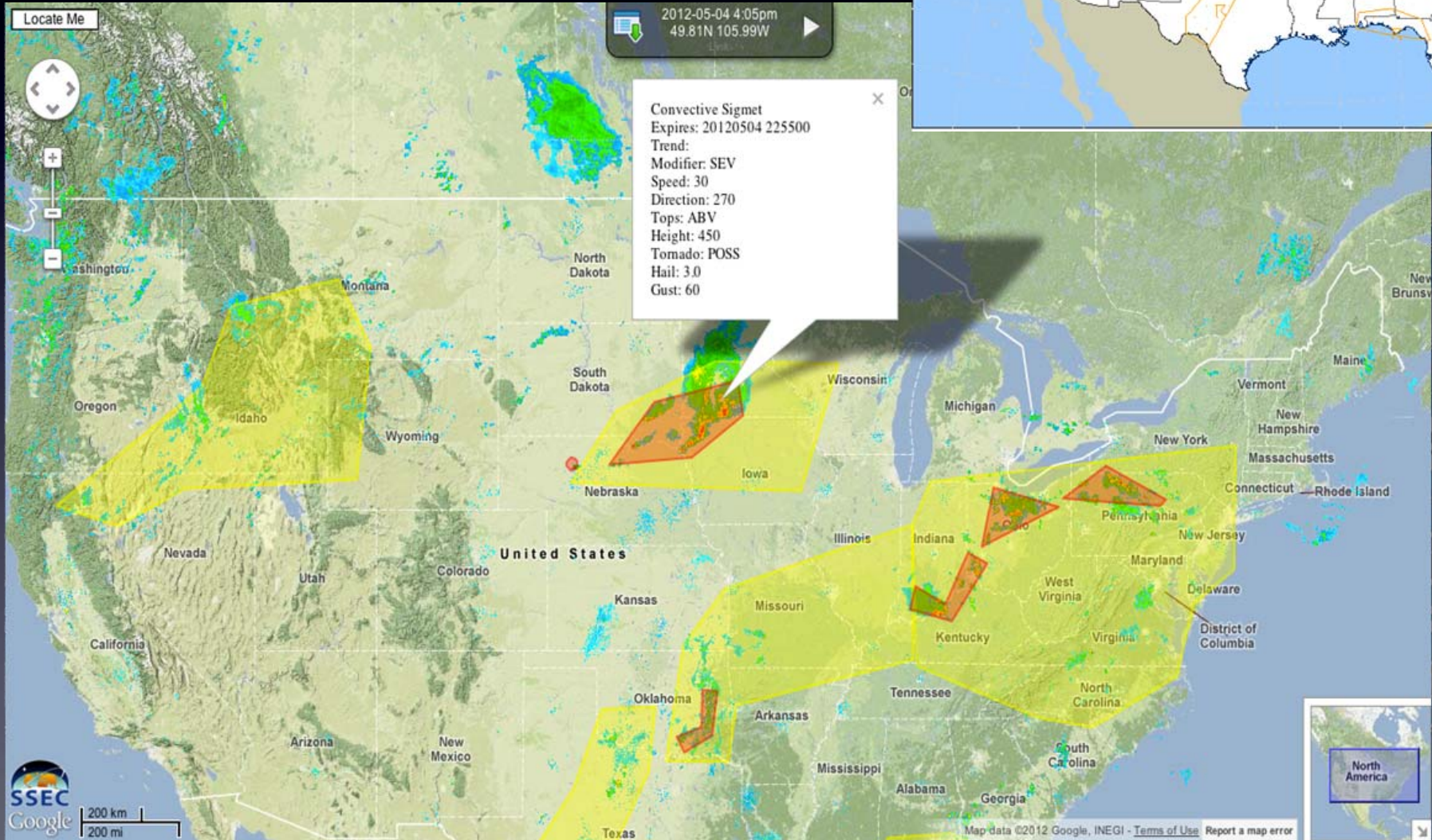
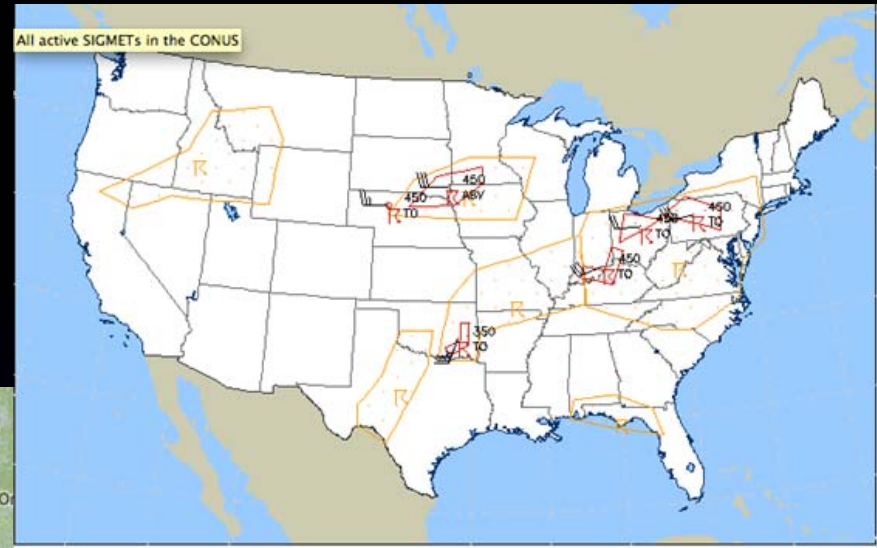
SPC

Convective Outlook



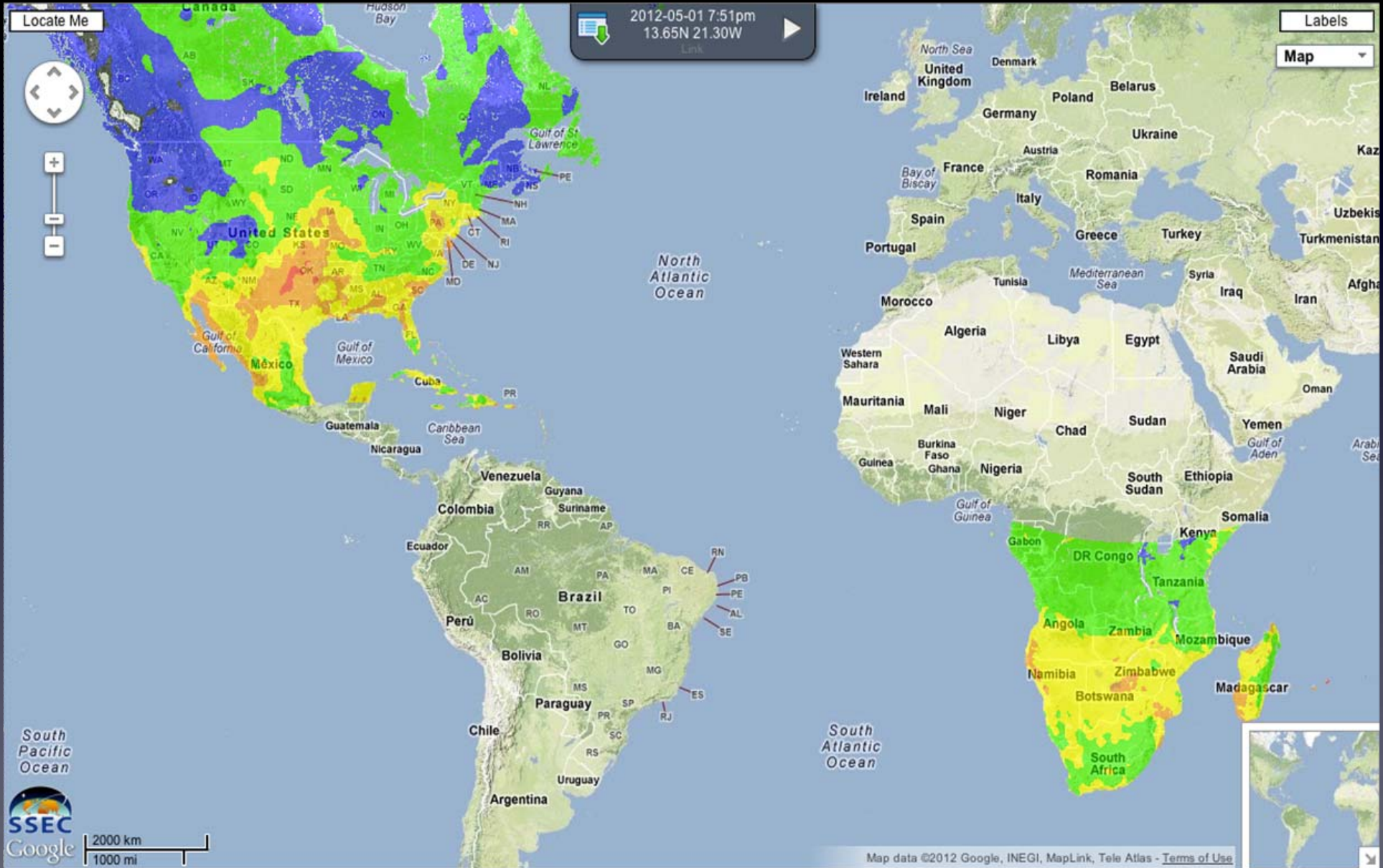
AWC

Convective Outlook and SIGMET



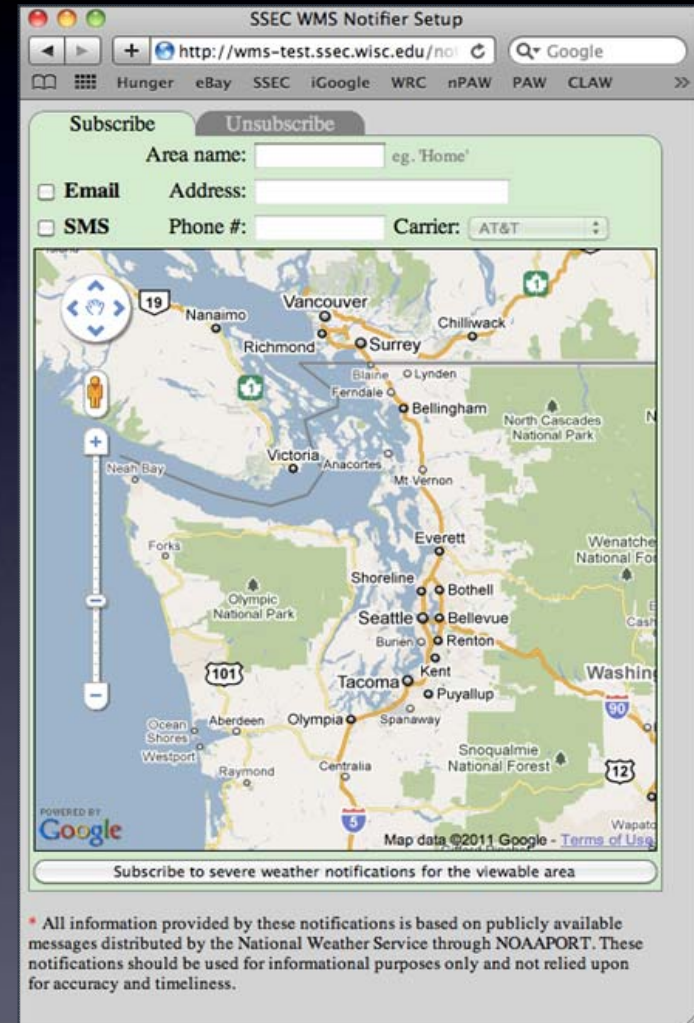
CIMSS

DBCRA Fire Danger Index



Notification Prototype

- Email, SMS and iPhone/Android notifications
- Configurable for regions
- GPS user tracking in native apps
- App receives notification which triggers WMS display



WMSUPLOAD



Upload Script

[This shell script](#) will verify and upload product data files.

Accepted formats include:

- GeoTIFF
- Shapefile
- McIDAS-X AREA

Usage: wmsupload [-h] [-u] file [product]

-h: Show help

-u: Check for update

file: Path to file

Format: /path/to/[product]_[YYYYMMDD]_[HHMMSS].???

product: Specify the product name (optional, cannot contain '_')
Required when the file name does not contain [product]

Product List

Summary

48 products

44 on time

0 late

4 static

6 seeding cache

Link Product

Status

Data Age

Cache Info



24hrprecip

24hrprecip

[Inspect](#) [Edit](#)

2m

Running for 81s



aquafalsecolor

MODIS False Color (AQUA)

3h

277 tiles in 57s (0.2s/t)

WMSUPLOAD

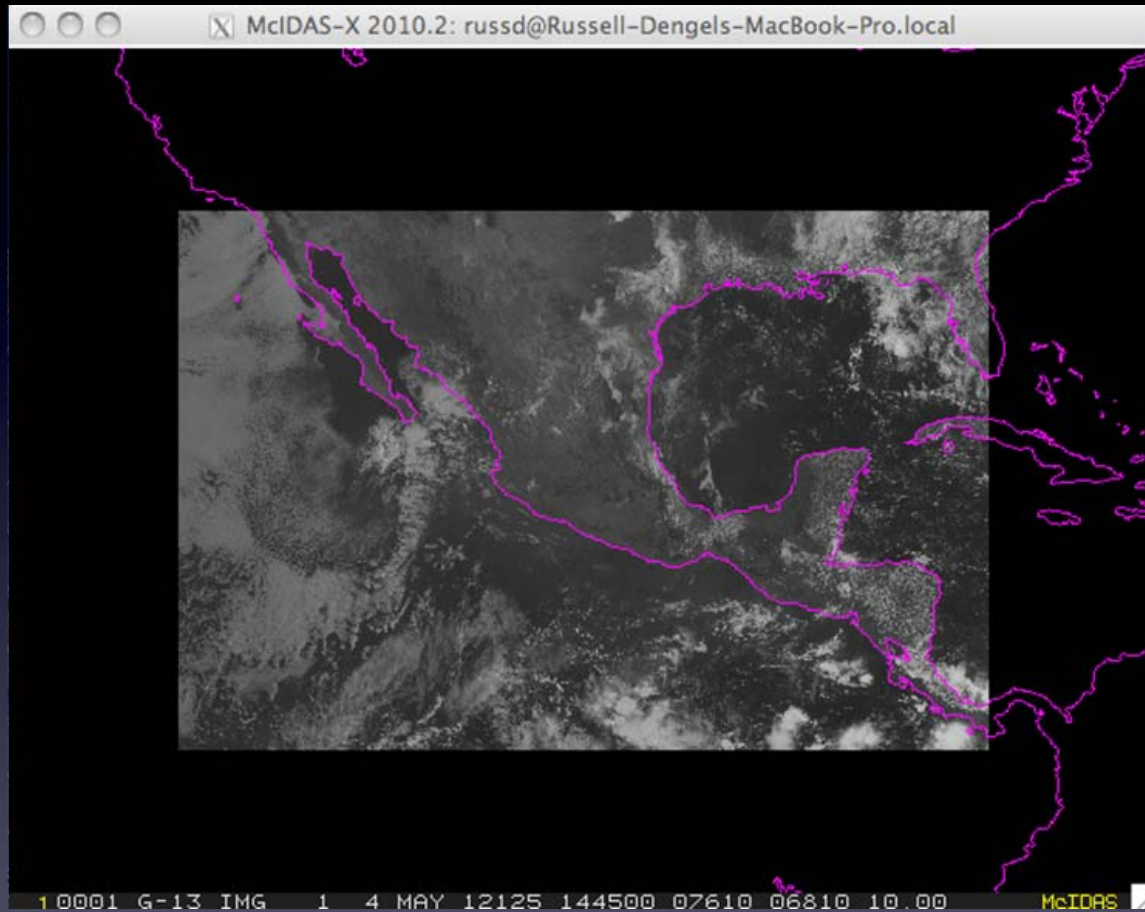
10001 G-13 IMG 1 4 MAY 12125 144500 07610 06810 10.00 McIDAS

	RWIS State	RWIS County
	Scale	Scale
root	23695 2283	0 Mar21 ?
forrest	23699 23695	0 Mar21 ?
forrest	23700 23699	0 Mar21 pts/5
davep	24801 1	0 Apr24 ?
rcarp	25940 1	0 Apr30 ?
rcarp	26337 1	0 Apr24 ?
rcarp	28138 1	0 Apr23 ?
root	30161 2283	0 Mar28 ?
scottl	30163 30161	0 Mar28 ?
scottl	30164 30163	0 Mar28 pts/7
rcarp	30539 1	0 Mar26 ?
rcarp	31627 1	0 Feb22 ?
rcarp	31844 1	0 Mar26 ?

```
russd@jeep data$ ps -ef | grep WUUS
russd 21629 20944 0 09:22 pts/10 00:00:00 grep WUUS
russd@jeep data$
```

```
IMGREMAP EASTL/CONUS A/A.1 PRO=RECT LAT=20 101 RES=1 SIZE=3000 4500 BAND=1
Beginning Image Data transfer, bytes= 17939924
IMGREMAP: transformations complete ... begin data move
Transferring AREA data outbound, bytes= 13500928
IMGREMAP: Done...
IMGDISP A/A.1 MAG=-10 LAT=20 101
Beginning Image Data transfer, bytes= 212544
IMGDISP: loaded frame 1
IMGDISP: done
MAP
MAP: Completed frame 1
IMA GRA Bounds Switches
1 1 1-6
Date Time T
04 May 2012125 15:09:24 0
```

WMSUPLOAD



IMA	GRA	Bounds	Switches	Date	Time	T
1	1	1-6		04 May 2012	15:27:39	0
05 "/home/russd/mcidas/data/wmsupload /home/russd/mcidas/data/AREA0001 MexicoVis						

WMSUPLOAD

McIDAS-X 2010.2: russd@Russell-Dengels-MacBook-Pro.local



2012-05-02 12:45pm
47.69N 129.22W

Locate Me

United States

Labels
Map

1000 km
500 mi

SSEC
Google

Map data ©2012 Google, INEGI, Inav/Geosistemas SRL, MapLink, Tele Atlas - Terms of Use

An interactive map interface showing the United States. A location is marked with a red pin and a tooltip displaying the date and time '2012-05-02 12:45pm' and coordinates '47.69N 129.22W'. The map includes navigation controls (compass, zoom in/out), a 'Locate Me' button, and a 'Labels' dropdown menu. A satellite inset is visible in the bottom-left corner of the map area. A scale bar at the bottom indicates 1000 km and 500 mi. The SSEC and Google logos are present in the bottom-left corner. Map data is attributed to ©2012 Google, INEGI, Inav/Geosistemas SRL, MapLink, and Tele Atlas.

10001 G-13 IMG 1 4 MAY 12125

IMA GRA Bounds S
1 1 1-6
05 "/home/russd/mc

Summary

- A WMS provides flexibility in staging a variety of data products
- A WMS can serve images TO many different clients (desktop browsers, mobile devices, Google Maps, etc.)
- The use of VMs provides flexibility, redundancy, load balancing
- WMS to be installed at NSSL within the next couple of days