

# **ENVI & IDL Services Engine For Web-Accessible Multi- & Hyperspectral Applications**

## **HyspIRI Products Symposium**

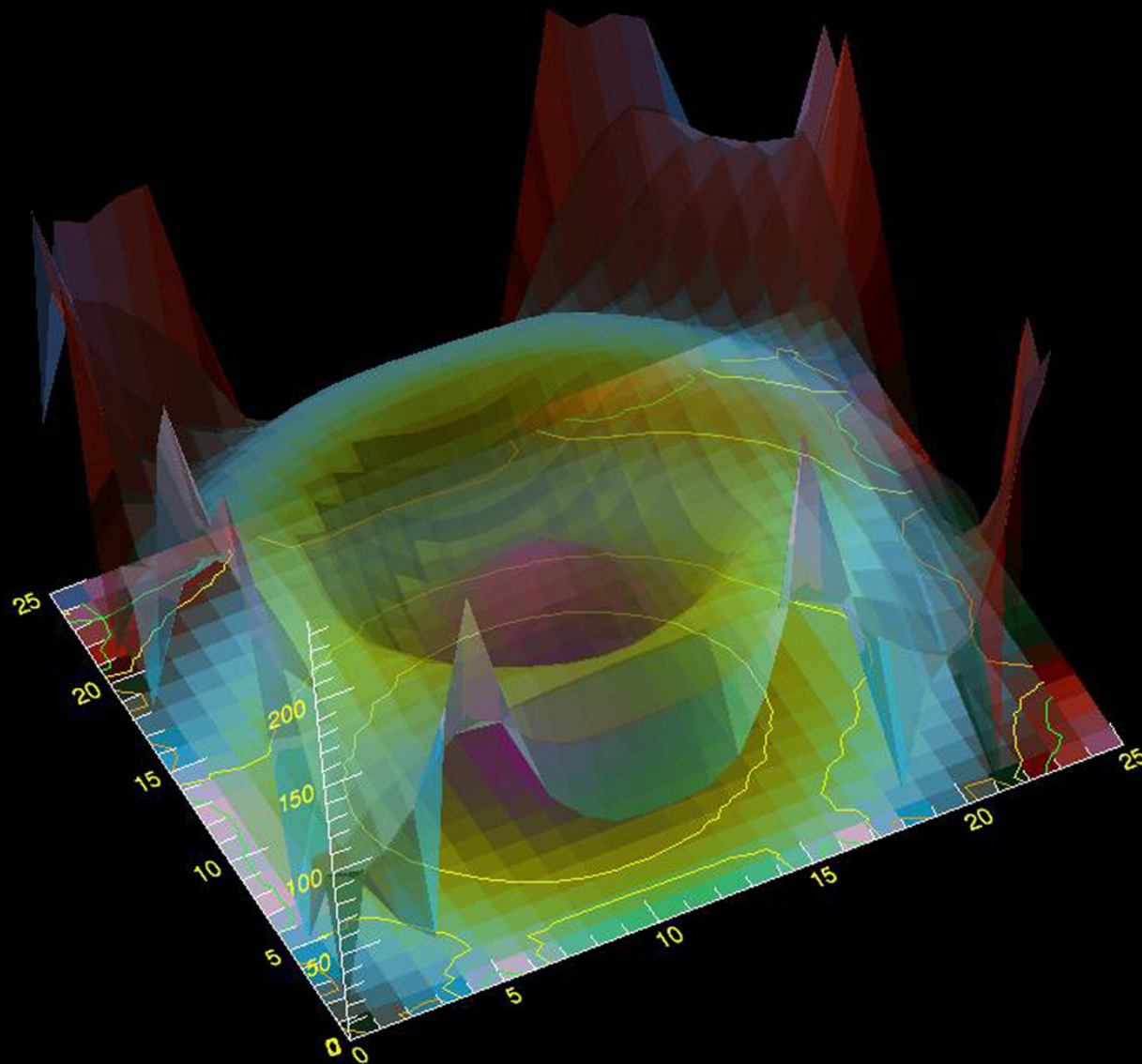
Goddard Space Flight Center  
May 30, 2013



# IDL

DISCOVER WHAT'S IN  
YOUR DATA

- > Language for Analysis,  
Rules, and Conventions
- > Interactive Graphics  
System
- > Development  
Environment
- > Customize ENVI  
Products with IDL
- > Output File Formats





# ENVI Platform

IMAGERY AND DATA  
BECOME KNOWLEDGE

- > ENVI
- > ENVI | LiDAR
- > ENVI | SARscape
- > ENVI | Services Engine





# ENVI LiDAR

IMAGERY AND DATA  
BECOME KNOWLEDGE

- > Prepare LiDAR Data for Geospatial Analysis
- > Identify & Extract 3D Features
- > Export Results to ENVI and ArcGIS



# IDL

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> Interactive Graphics  
System

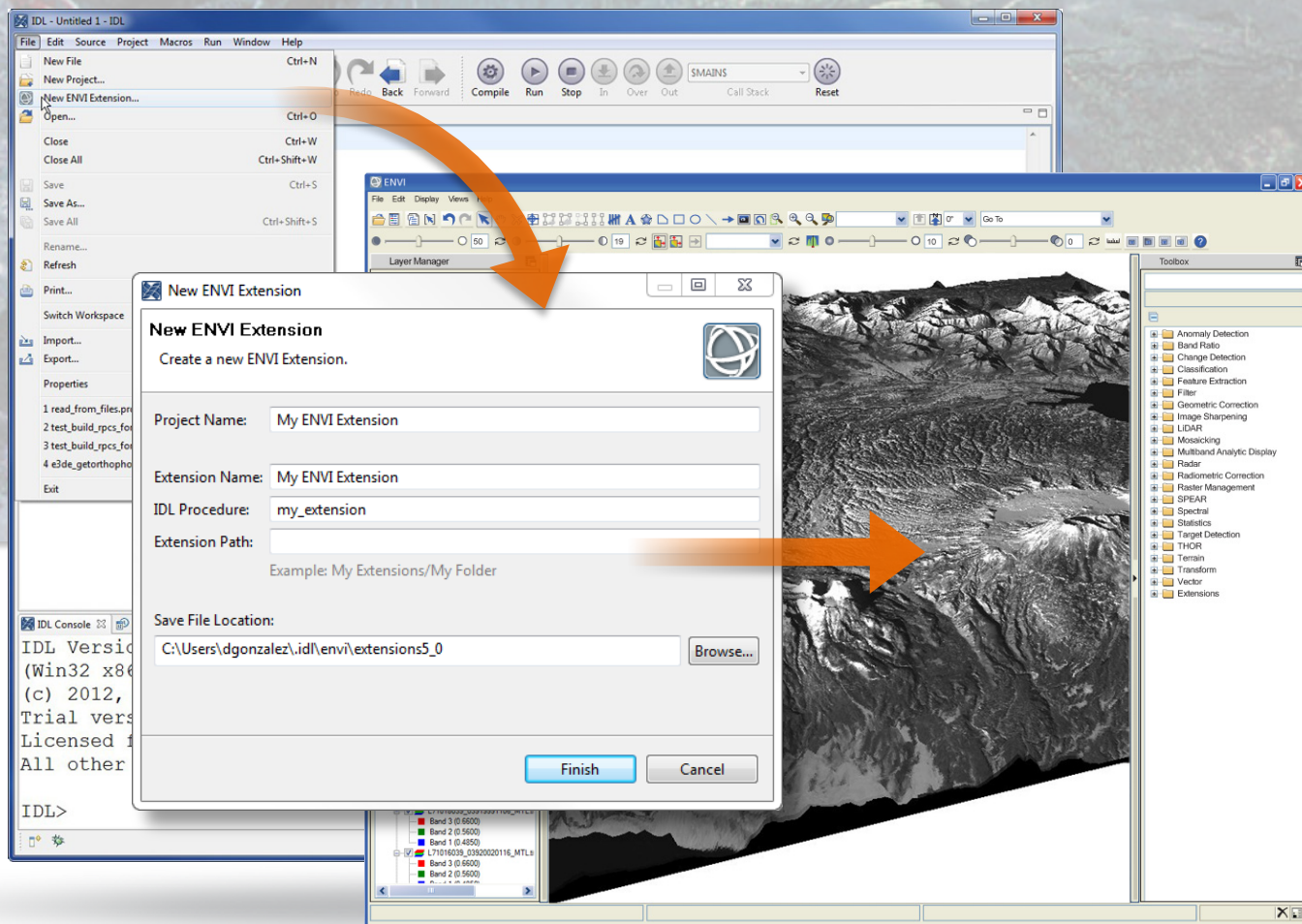
> Development  
Environment

> **Customize ENVI  
Products with IDL**

> Output File Formats

## Extending ENVI with IDL

- Custom algorithms
- Batch Processing in IDL using the ENVI API



# ENVI Services

ONLINE, ON-DEMAND,  
GEOSPATIAL AWARENESS

- > Configure seamlessly with your existing infrastructure
- > Create and publish web deployed image analysis tools
- > Consume ENVI from mobile, web, and thin clients
- > Get geospatial imagery where and when you need it

## ENVI Services Engine

### Create Deploy Access





# ENVI Services

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mobile, web, and thin  
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> Get geospatial imagery  
where and when you  
need it

## Configure seamlessly with your existing infrastructure



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## Create and publish web deployed image analysis tools

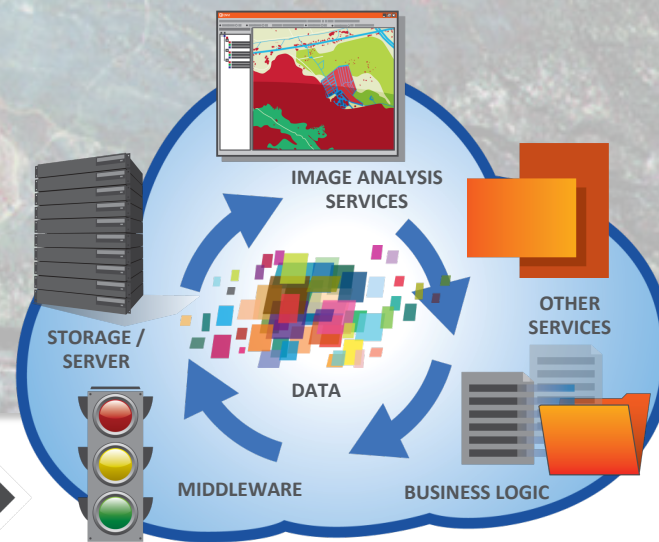
### Create



App Developer

APPS

### Deploy





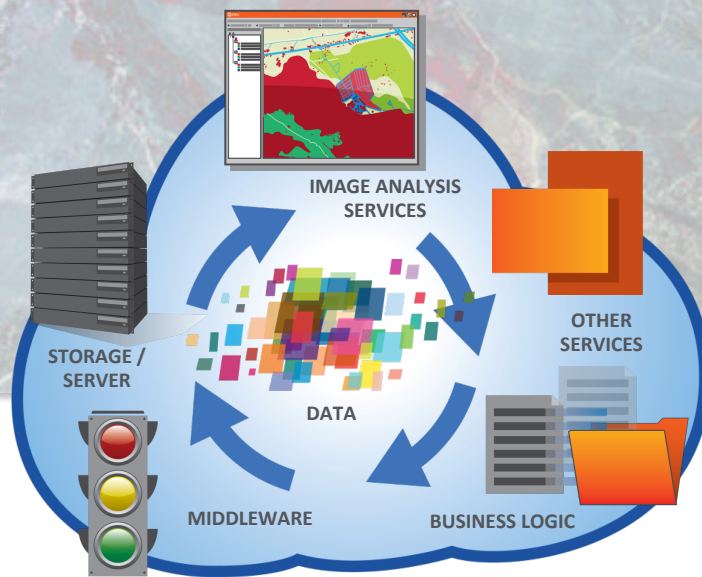
# ENVI Services

ONLINE, ON-DEMAND,  
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- > Configure seamlessly with your existing infrastructure
- > Create and publish web deployed image analysis tools
- > **Consume ENVI from mobile, web, and thin clients**
- > Get geospatial imagery where and when you need it

## Consume ENVI from mobile, web, and thin clients

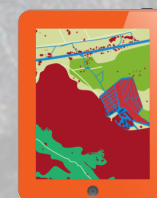
### Deploy



### Access



Web



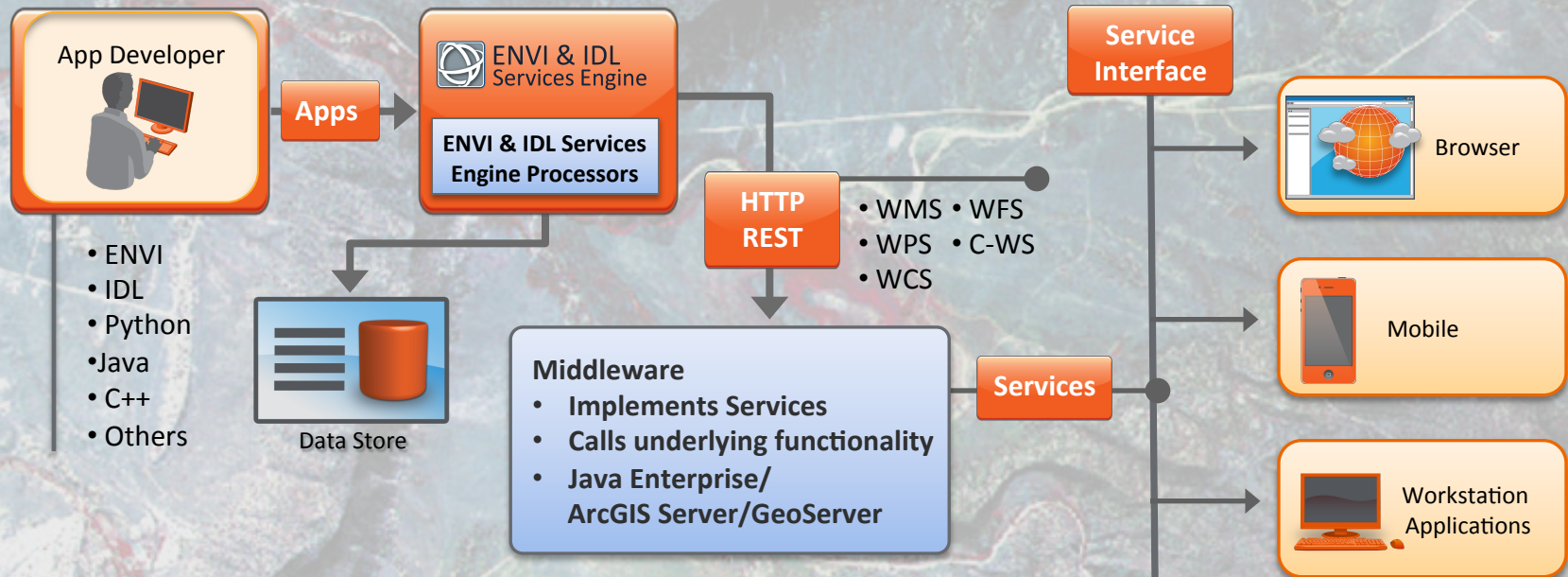
Mobile



Desktop

# Integrating ENVI Services with GeoServer

## Deployment in the Enterprise



- > Developers create apps with ENVI+IDL, Python, or other development tools and publish them to the engine
- > Middleware agnostic design integrates through HTTP
- > ENVI Services Engine manages ENVI+IDL processes
- > End users interact via their interface of choice
- > Discrete online apps simplify updates to users



# ENVI & IDL Services Engine

## IDL Application Deployment Model

```
IDL - C:\Users\tharris\Documents\DATA\BRIEFS-TRAINING-EVENTS\2013\HypIRI Meeting\neon_rel_water_depth\rel_water_depth.pro - IDL
File Edit Source Project Macros Run Window Help
Open New File New Project Save Cut Copy Paste Undo Redo Back Forward Compile Run Stop In Over Out SMAINs Call Stack Reset

rel_water_depth.pro
;
; @History
; 03/22/12 - first version
; 03/30/12 - simplified routine signature; improved masking and scaling;
;           added a sieve filter to remove isolated pixels (goal is ocean only)
;
; @Requires
; ENVI 4.8
;-
pro rel_water_depth, $
  fname, $
  ul_xcoord, $
  ul_ycoord, $
  lr_xcoord, $
  lr_ycoord, $
  rgb_out_name, $
  shapefile_out_name, $
  ;status=status, $
  ;error_str=error_str, $
  ;simple=simple

  compile_opt idl2, logical_predicate

; generic catch
;
catch, error_status
catch, cancel=envi_cancel_catch()
if (error_status ne 0) then begin
  help, /last, output=msg
  error_str = [error_str, msg]
  print, error_str
  return
endif

: initialize variables
```

```
config.json - Notepad
File Edit Format View Help
[
  {
    "parameters": [
      {
        "direction": "input",
        "dataType": "FilePath",
        "name": "fname",
        "parameterType": "required",
        "displayName": "ENVI file ID for input file. "
      },
      {
        "direction": "input",
        "dataType": "String",
        "name": "ul_xcoord",
        "parameterType": "required",
        "displayName": "The upper left X map coordinate specified in Lat/Lon WGS-84, in decimal degrees."
      },
      {
        "direction": "input",
        "dataType": "String",
        "name": "ul_ycoord",
        "parameterType": "required",
        "displayName": "The upper left Y map coordinate specified in Lat/Lon WGS-84, in decimal degrees."
      },
      {
        "direction": "input",
        "dataType": "String",
        "name": "lr_xcoord",
        "parameterType": "required",
        "displayName": "The lower right X map coordinate specified in Lat/Lon WGS-84, in decimal degrees."
      },
      {
        "direction": "input",
        "dataType": "String",
        "name": "lr_ycoord",
        "parameterType": "required",
        "displayName": "The lower right Y map coordinate specified in Lat/Lon WGS-84, in decimal degrees."
      },
      {
        "direction": "output",
        "dataType": "FilePath",
        "name": "rgb_out_name",
        "parameterType": "required",
        "displayName": "RGB TIFF image file name "
      },
      {
        "direction": "output",
        "dataType": "FilePath",
        "name": "shapefile_out_name",
        "parameterType": "required",
        "displayName": "Depth Contour Shapefile name"
      }
    ],
    "name": "rel_water_depth",
    "displayName": "Relative Water Depth"
  }
]
```

Available Tasks

Filter...

- ☒ GPSSync
- ☒ ese\_addition
- ☐ MarineDebrisShpParser
- ☒ GPASync
- ☐ ese\_ratioexplorer

Task Details

Identification

Task Name ESE/GPSSync/ese\_addition

Display Name ESE Addition

Parameters

Name	Display Name	Data Type	Direction	Parameter Type
a	a	double	input	required
b	b	double	input	required
c	c	double	input	optional
answer	answer	double	output	required

Upload IDL Plugin

RelativeH2O.zip (Upload Complete)

If upload succeeds, be sure to check the Error Log for messages about unzipping, parsing, and validating the plugin.

4 rows





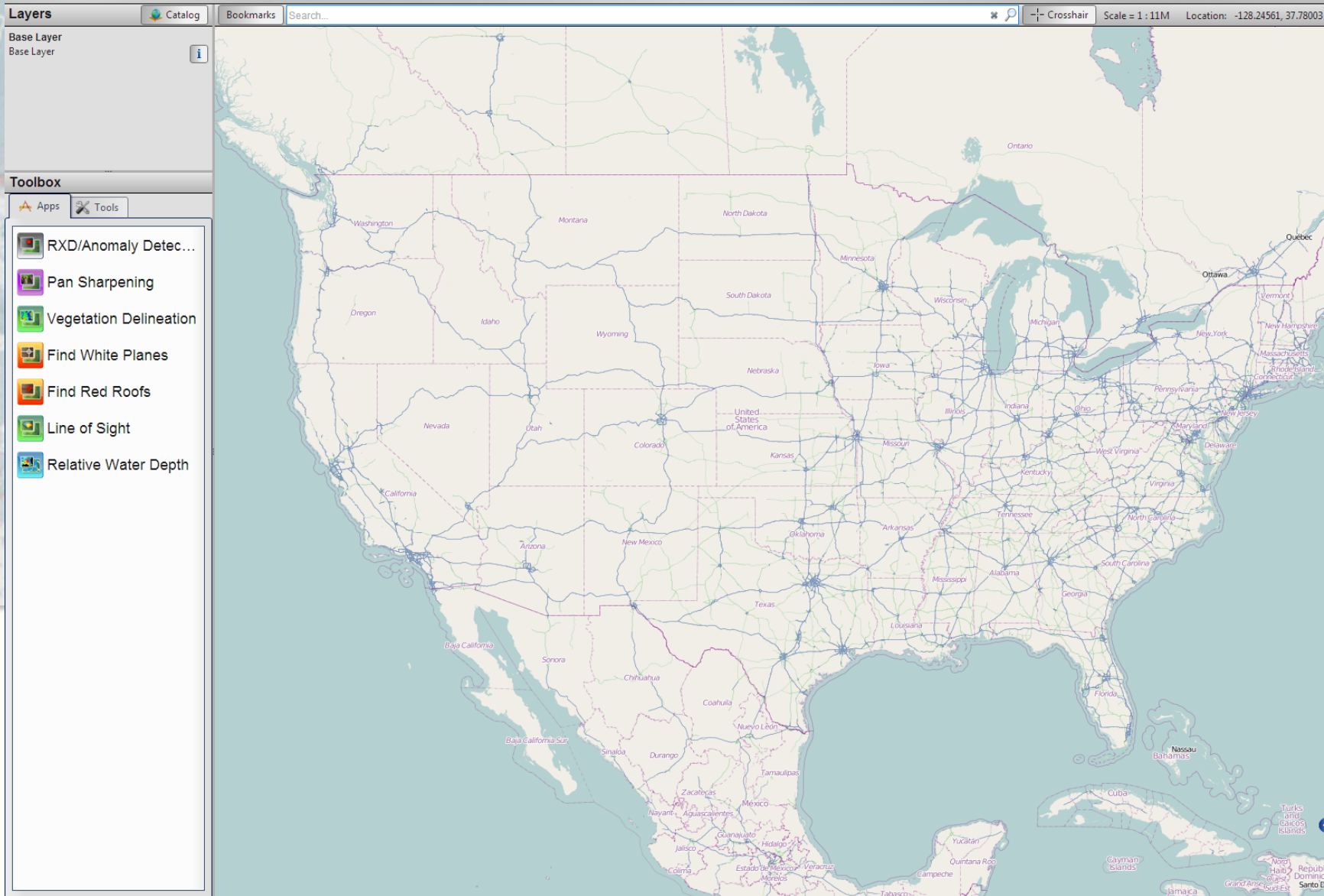
# ENVI

## SERVICES ENGINE

DEMONSTRATION CLIENT

**Sign In**

This site is for demonstration purposes of the  
ENVI Services Engine. Authorized Use Only.



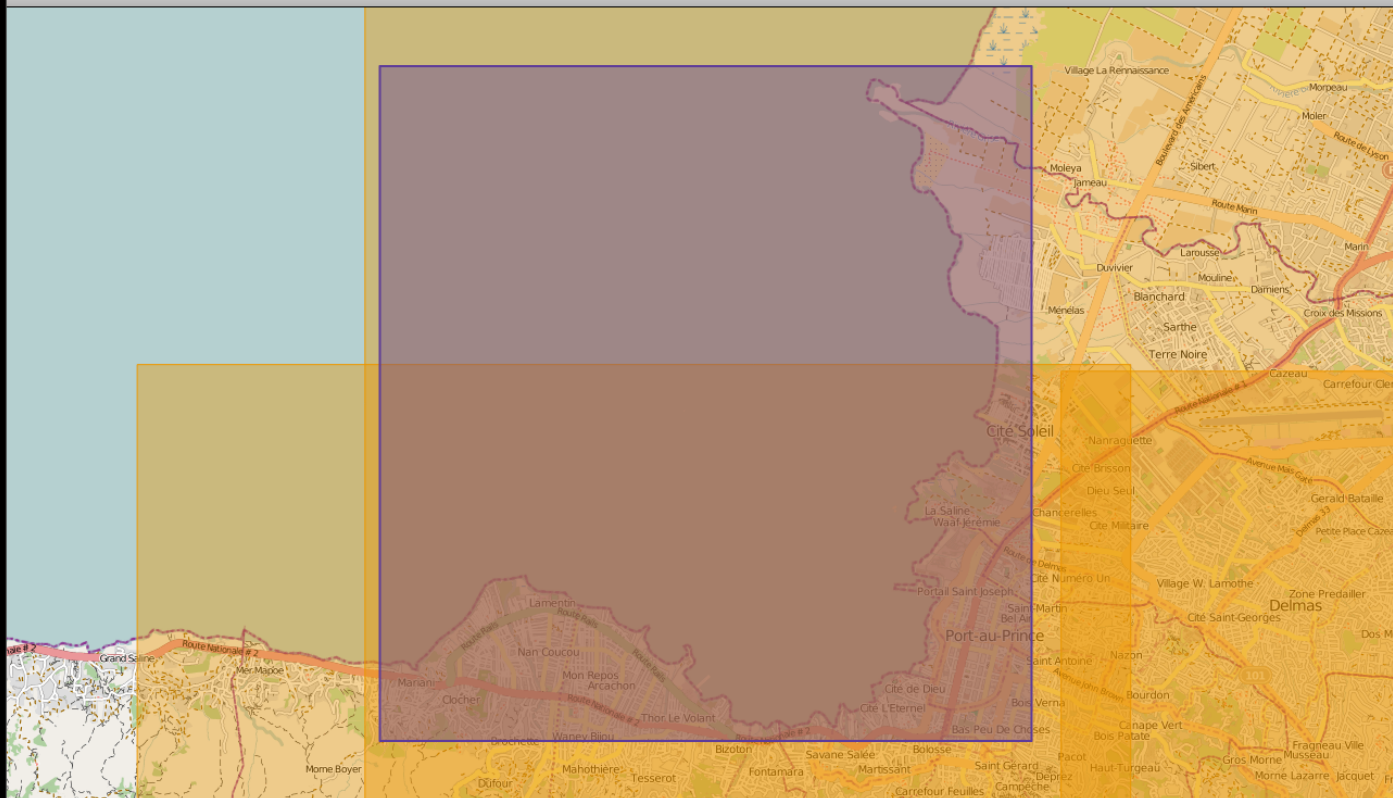
## Catalog Browser

Search...

Location: -72.28534, 18.59982

## Selected Items

ttvis:Haiti\_10JAN15\_Ortho\_disp



## Search Results

Abstract	Type	Format	Date	Contact
Birmingham, Alabama H02.las	LIDAR, Terrain	LAS	2011-07-12	Gregory E. Terrie
Birmingham, Alabama Mosaic	DEM, Imagery	GeoTIFF	2011-07-12	Gregory E. Terrie
Birmingham, Alabama Mosaic	Hillshade, Imagery	GeoTIFF	2011-07-12	Gregory E. Terrie
Boulder, Colorado USA	MSL, Imagery	GeoTIFF	2011-07-12	Gregory E. Terrie
Haiti Jan-13-10 GeoEye-1 Image 1	MSL, Imagery	GeoTIFF	2011-07-12	Kevin Lausten
Haiti Jan-13-10 GeoEye-1 Image 2	MSL, Imagery	GeoTIFF	2011-07-12	Kevin Lausten
Haiti Jan-15-10 WV-2	MSL, Imagery	GeoTIFF	2011-07-12	Kevin Lausten
Port-au-Prince, Haiti	MSI2, Imagery	GeoTIFF	2012-05-11T12:17:04	Gregory E. Terrie

Display



