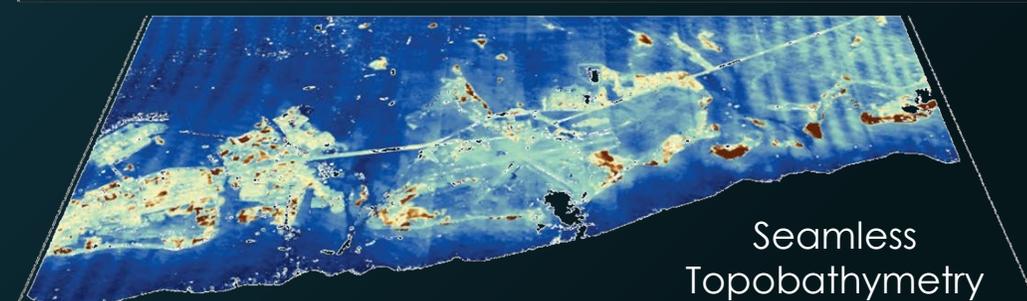
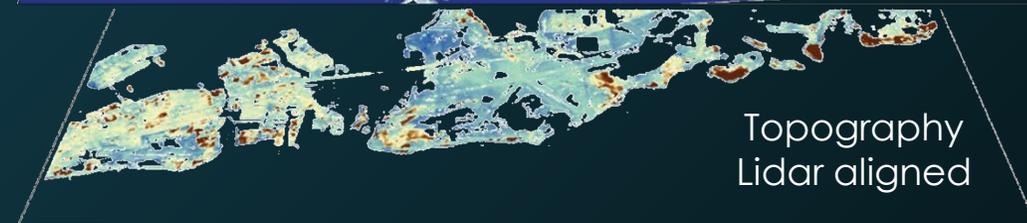


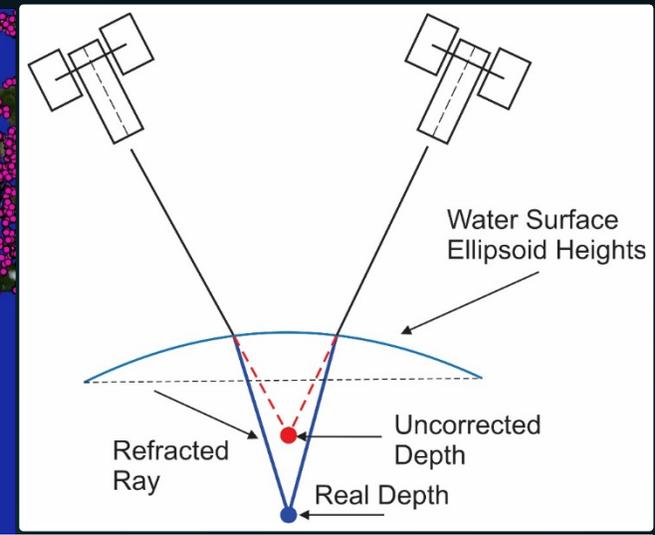
Open-source satellite derived bathymetry module for NASA Ames Stereo Pipeline

Monica Palaseanu-Lovejoy, USGS GMEG
Oleg Alexandrov, NASA Ames
Jeff Danielson, USGS EROS

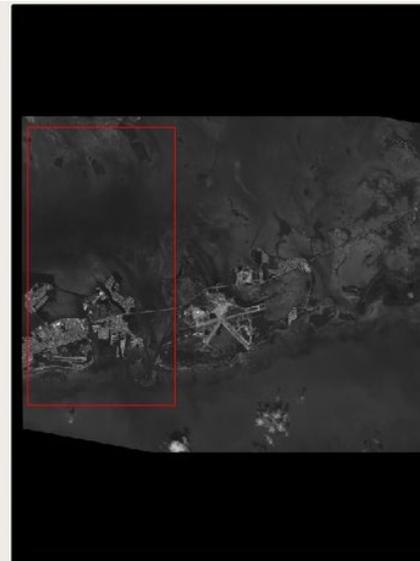


Bathymetry module NASA Ames Stereo Pipeline

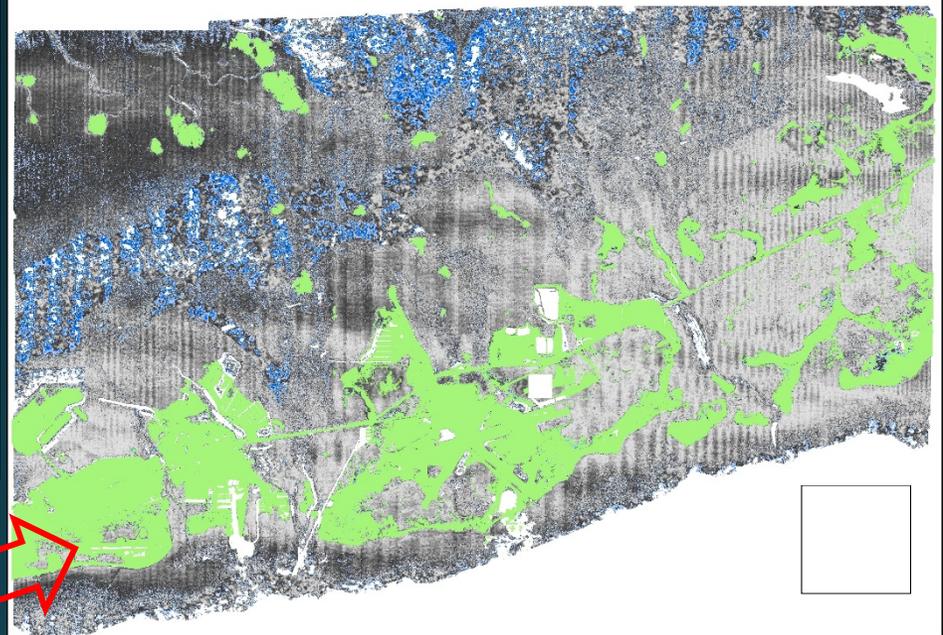
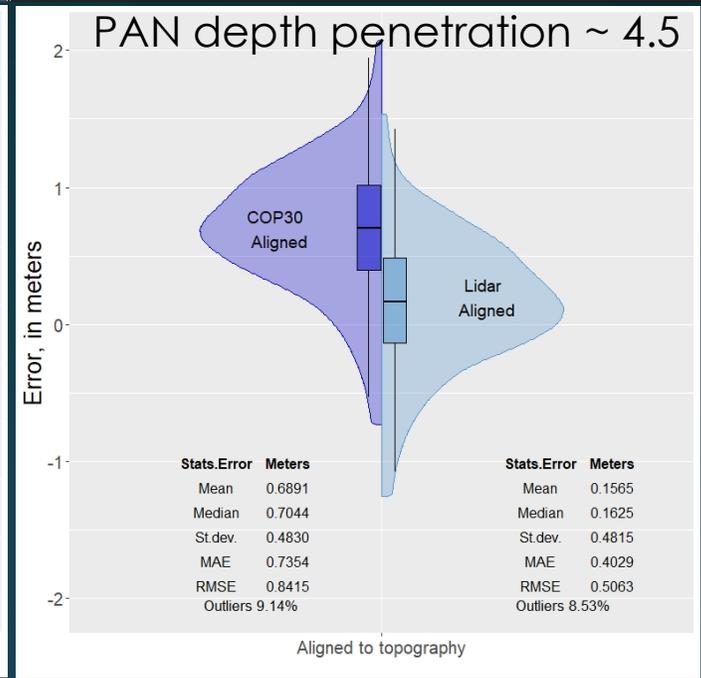
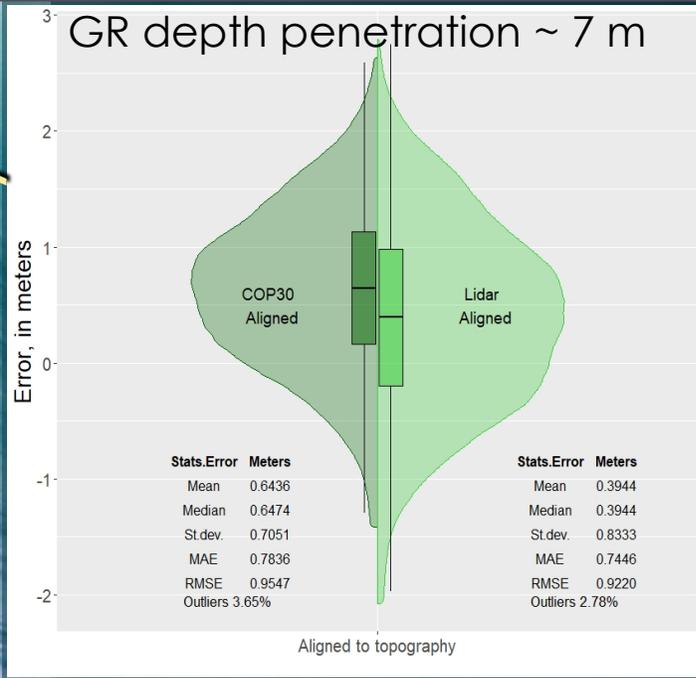
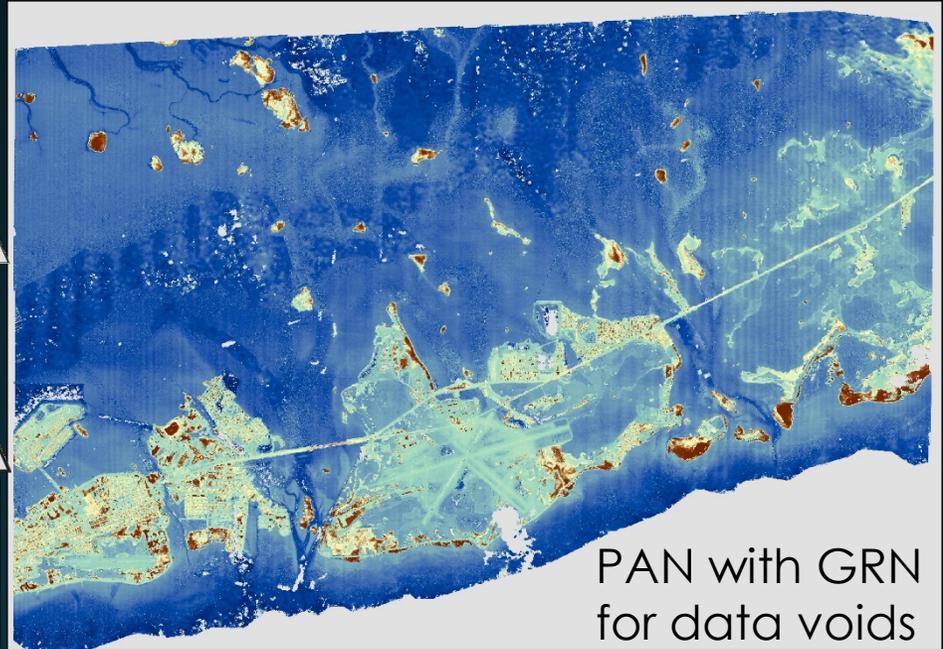
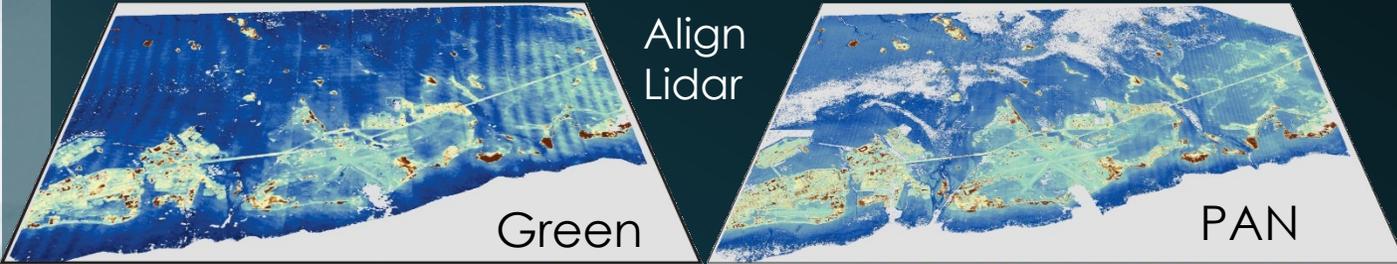
- Active development
- Blue, Green and PAN bands
- NIR1 / NIR2 used for land/water mask
- Land/water thresholds:
 - KDE minima (fully implemented)
 - Otsu (development)
- Water elevation surface (local stereographic projection)
 - Interactive: Stereo GUI
 - Automatic: land/water mask
- Water refraction index:
 - General: 1.34, 1.33
 - Location specific
- 3D Reconstruction:
 - Topography
 - Bathymetry
 - Topobathymetry



```
Found 6810 / 30000 inliers.  
Max distance to the plane (meters): 17.3824  
Max inlier distance to the plane (meters): 0.199918  
Mean plane height above datum (meters): -24.8876  
Writing: mask_plane/GRplaneL_lim02_nr30k.txt  
Writing inlier shapefile: shape_mask/GRshapeL_lim02_nr30k.shp
```



Bathymetry module Florida Keys Results



Stats. Error	Meters	Stats. Error	Meters
Mean	0.2474	MAE	0.4918
Median	0.2341	RMSE	0.6258
St.dev.	0.5749		

Questions?

Resources:

Active development of NASA ASP w/ bathy module:

<https://github.com/NeoGeographyToolkit/StereoPipeline/releases>

User Manual:

<https://stereopipeline.readthedocs.io/en/latest/introduction.html>

GMEG SC: <https://www.usgs.gov/centers/gmeg>

EROS SC: <https://www.usgs.gov/centers/eros>

EROS CoNED: <https://www.usgs.gov/core-science-systems/eros/coned>

NASA ASP: <https://ti.arc.nasa.gov/tech/asr/groups/intelligent-robotics/ngt/stereo/>

Thank You!

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