

# FLORIDA CUSTOM GEOID

Presented by Ron Hanson, PSM  
FPRN Manager  
Florida Department of Transportation

A decorative graphic consisting of several parallel white lines of varying thicknesses, slanted diagonally from the bottom left towards the top right, set against a blue gradient background.


# FLORIDA CUSTOM GEOID

## WHY?

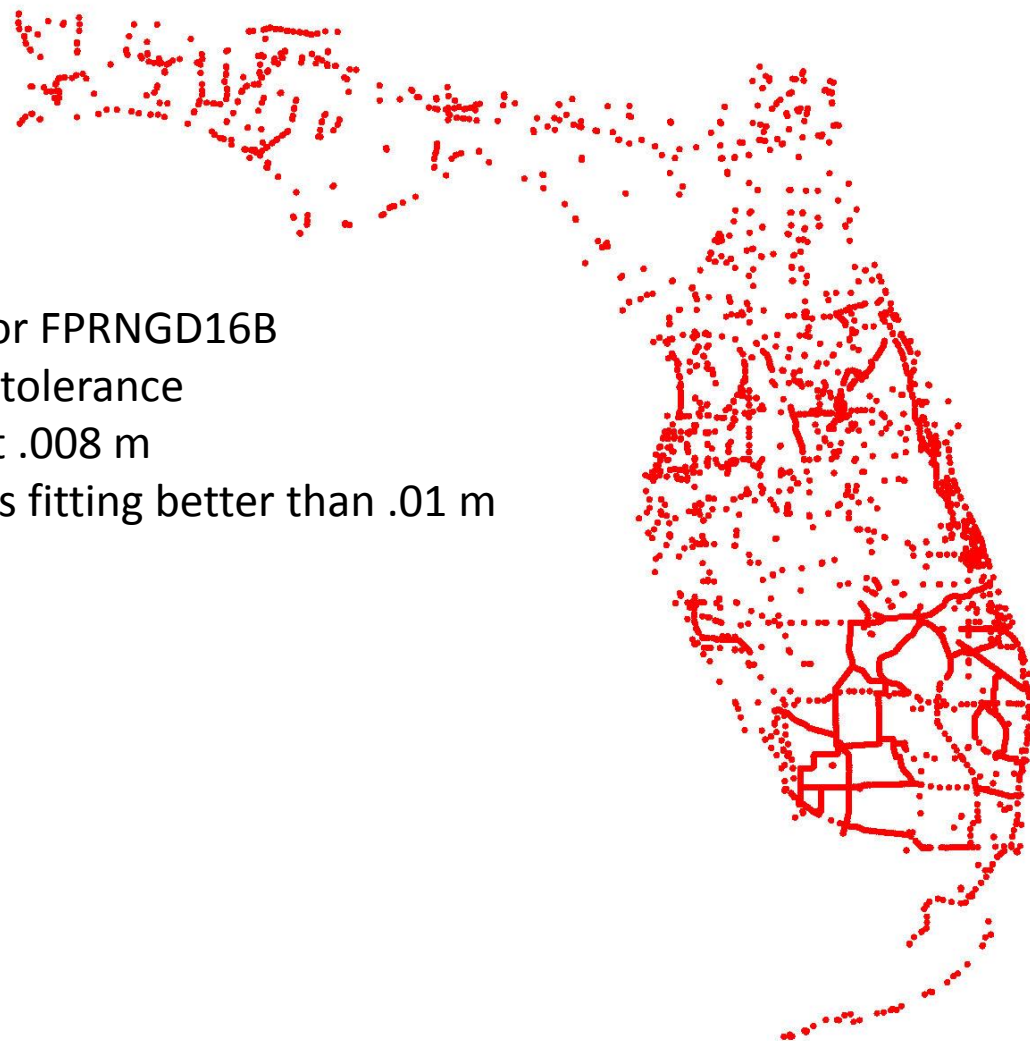
- ▶ Usefulness of any Geoid model is limited by data density and distribution.
- ▶ NGS Hybrid Geoid philosophy limits current usefulness to surveyors.  
Rigorous Math vs. Survey Practical
- ▶ Geoid 12A/B is good in a relative sense – not so good in an absolute sense.
- ▶ FPRN (RTK mode) requires a Geoid to be functional in the absolute sense.
- ▶ Gravity based Geoid model from NGS will not be available until 2022 +.

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## WHY NOT...

- ▶ Densify the data? (FDOT has 1000+ Florida benchmarks with horizontal positions and measured ellipsoid heights not used in Geoid12A/B)
  - ▶ Remove NGS style mathematical correctness? (To fit Survey thinking)
  - ▶ Do it now?
- 

# Benchmark Locations in FPRNGD16



3472 BM's available for FPRNGD16B  
3354 BM's met .08 m tolerance  
Resulting in RMS of fit .008 m  
Resulting in 3025 BM's fitting better than .01 m

2470 BM's available for Florida Geoid12B  
.08 m tolerance used as in FPRNGD16B  
Resulting in RMS of fit .022 m  
Resulting in 1712 BM's fitting better than .01 m

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Where did the extra Benchmarks come from?

- ▶ FDOT Benchmarks that were never Bluebooked  
(853 BMs)
- ▶ FDOT Height Mod participation  
(149 BMs published in OPUS)

# 149 of the checkered flags represent OPUS BMs included in FPRNGD16

## Legend

### 2016 Planned GPS Observations



### New GPSBM [OPUS]



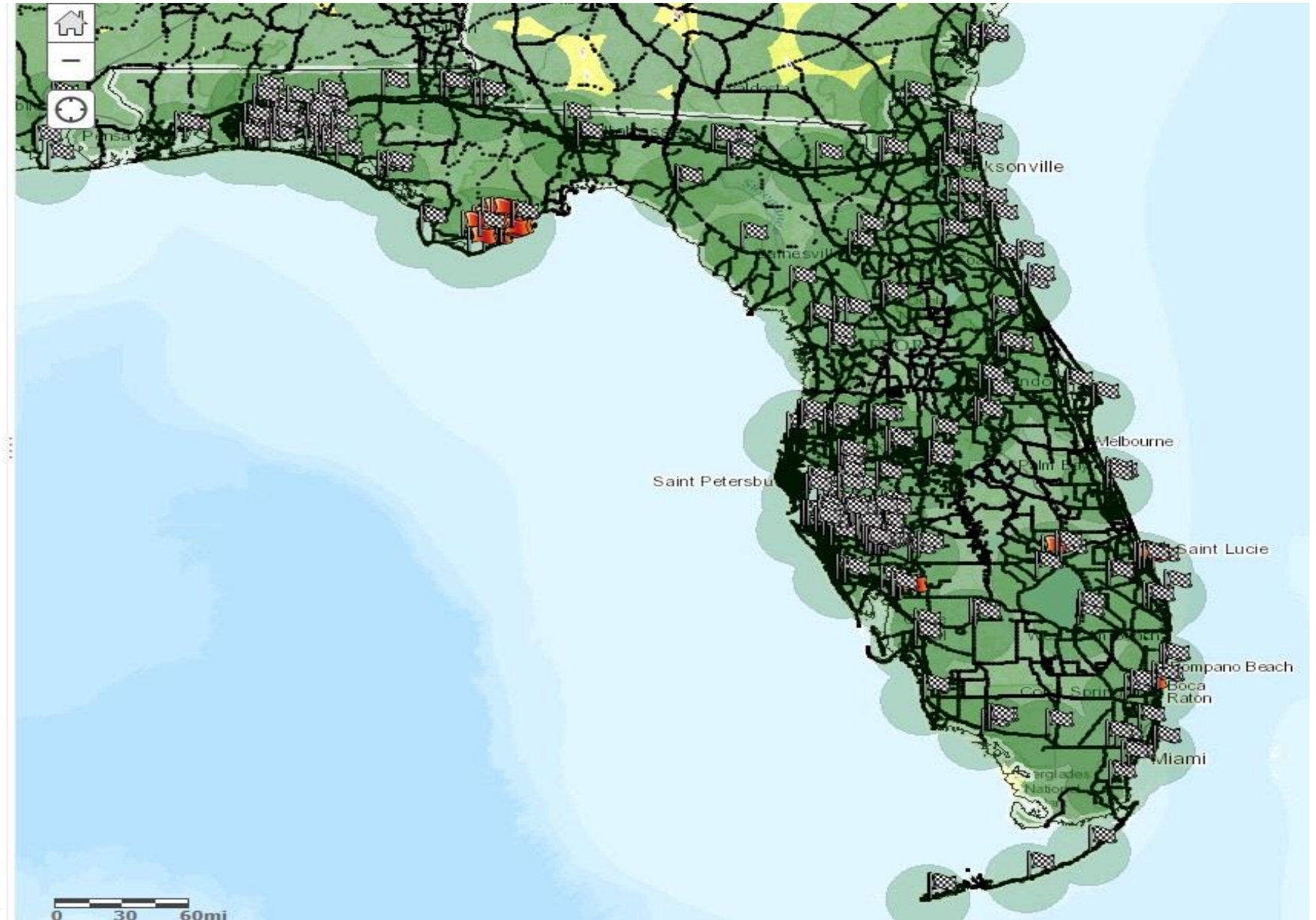
### New GPSBM [NGSIDB]



### GPSonBM Distance to Nearest BM

#### GEOID12B Distance to BM (km)

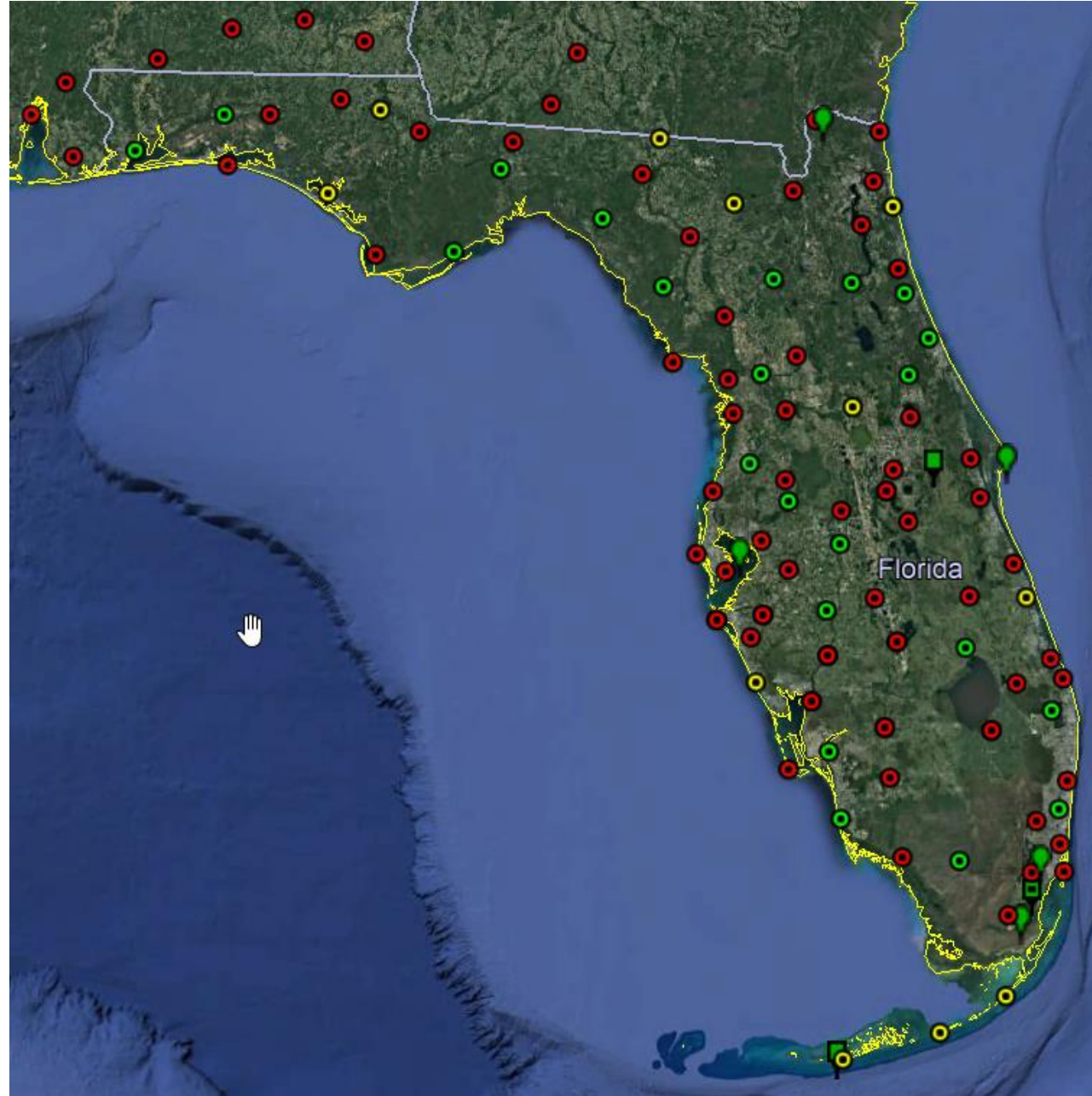
- 0 to 30
- 30 to 40
- > 40





<http://www.dot.gov/geospatial/fprnstat/index.html>

Of the 30 CORS sites registered in NGS system, 24 were established by FDOT and 11 more have been proposed



The other sites include FDOT CORS (not in NGS System) and various co-op sites.

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## How do you make use of FPRNGD16?

- If you use the NGS interpolation program (intg.exe) for Geoid12B, substitute our g2012bu7.bin for the NGS-supplied file with the same name. Then execute intg.exe as before.
- If you use Leica LGO software, create a FPRNGD16B folder, populated with FPRNGD16B.exe and g2003u07.bin. Then within LGO create a Geoid called FPRNGD16B that points to the folder by the same name.
- For data collectors requiring special files we have available FPRNGD16B.gem for Leica, FPRNGD16B.GGF (thank you GPServ.Inc) for Trimble and FPRNGD16.GSF (thank you Carlson Software) for Carlson.



# FLORIDA CUSTOM GEOID

- The geoid files are currently available on our website

<http://fdot.gov/geospatial/fprn>

- We are asking for users to supply feedback when collecting GNSS data on existing benchmarks in order to improve the quality of the FPRNGD16B geoid.

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Questions?



# FLORIDA CUSTOM GEOID SUPPORT

[www.dot.gov/geospatial/fprn.shtm](http://www.dot.gov/geospatial/fprn.shtm)

- Ron Hanson (Tuesday – Saturday)
  - (850) 414-4254 Office
  - (850) 510-8596 Cell
  - [ronald.hanson@dot.state.fl.us](mailto:ronald.hanson@dot.state.fl.us)
- Scott Harper (Sunday – Thursday)
  - (850) 414-4596 Office
  - (850) 728-1240 Cell
  - [scott.harper@dot.state.fl.us](mailto:scott.harper@dot.state.fl.us)