

Civil Report Card On GPS Performance

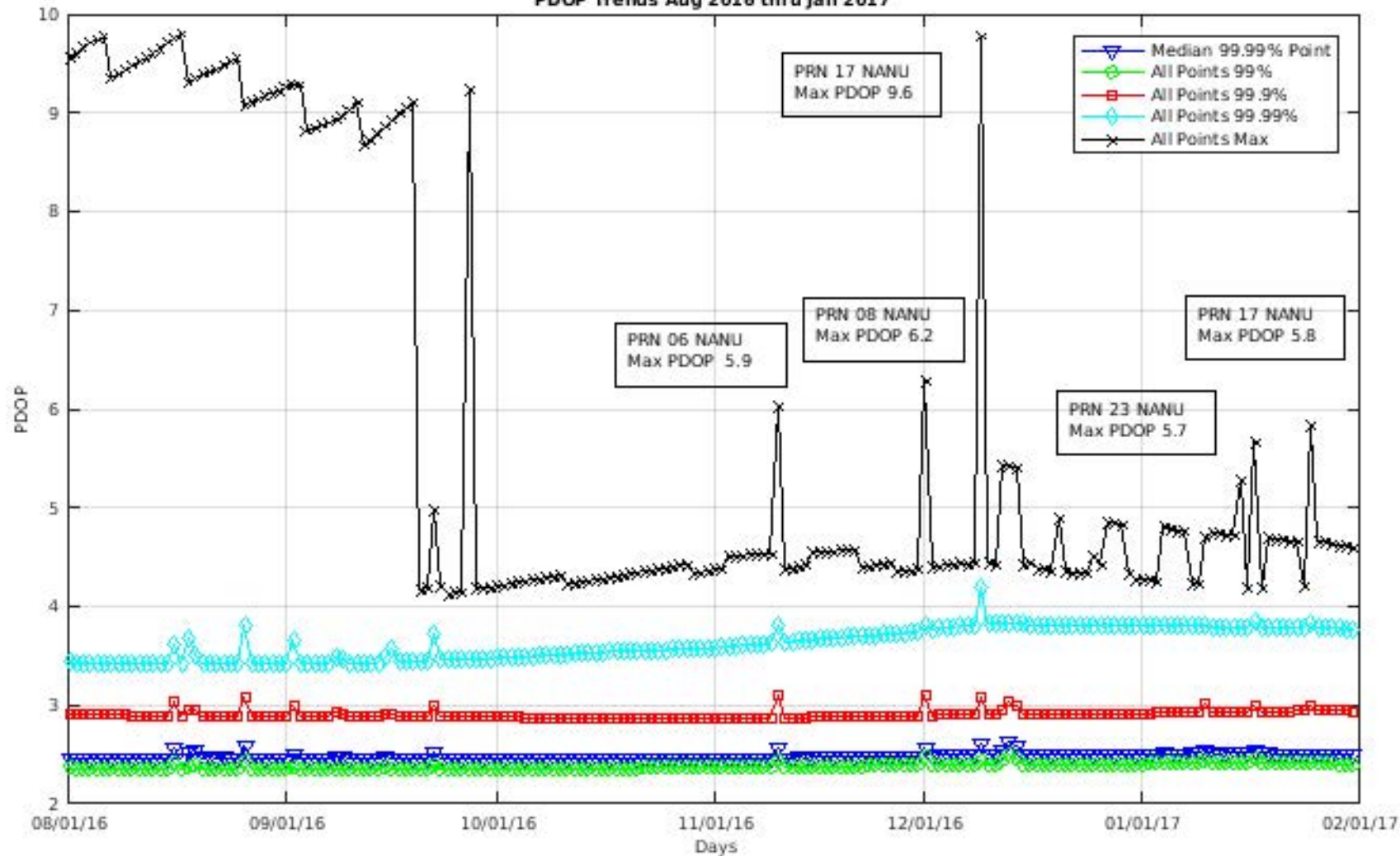
Jan 2017

| Operational Performance Parameter | CY 2016 | Dec 2016 | Jan 2017 | Long term | Short term |
|---|-------------------|-------------------|-------------------|-----------|------------|
| Availability Parameters | | | | | |
| <i>Average Number of satellites usable</i> | 30.85 | 30.92 | 30.98 | ↑ | ↑ |
| <i>Average number of satellites usable in primary slots</i> | 23.99 (99.94%) | 23.98 (99.94%) | 23.98 (99.93%) | ↓ | ↓ |
| <i>Average availability of 6 satellites in view</i> | 99.94% | 100% | 100% | ↑ | → |
| 99.99% Horizontal DOP | | | | | |
| <i>Area Median</i> | 1.3 | 1.3 | 1.3 | → | → |
| <i>Worst Site</i> | 4.9 | 3.1 | 2.7 | ↑ | ↑ |
| 99.99% Vertical DOP | | | | | |
| <i>Area Median</i> | 2.3 | 2.4 | 2.3 | → | ↑ |
| <i>Worst Site</i> | 15.1 | 9.1 | 5.7 | ↑ | ↑ |
| 99.99% Position DOP (PDOP) | | | | | |
| <i>Area Median</i> | 2.6 | 2.7 | 2.6 | → | ↑ |
| <i>Worst Site</i> | 15.8 | 9.6 | 5.8 | ↑ | ↑ |
| 100% RAIM Availability (HAL=185m) | | | | | |
| <i>NPA Service Area (NSA)</i> | 76.93% | 90.95% | 90.42% | ↑ | ↓ |
| <i>World</i> | 68.27% | 74.13% | 78.73% | ↑ | ↑ |
| Accuracy Parameters | | | | | |
| RMS Single Frequency User Range Error | | | | | |
| <i>Constellation Median</i> | 1.64 | 1.62 | 1.56 | ↑ | ↑ |
| <i>Worst Satellite</i> | 16.90 | 15.52 | 13.41 | ↑ | ↑ |
| 95% Horizontal Error | | | | | |
| <i>Area Median</i> | 1.98 | 1.81 | 1.82 | ↑ | ↓ |
| <i>Worst Site</i> | 7.82 | 3.48 | 3.78 | ↑ | ↓ |
| <i>Availability (% <4.5m (historical 3-sigma))</i> | 99.65% | 99.94% | 99.93% | ↑ | ↓ |
| 95% Vertical Error | | | | | |
| <i>Area Median</i> | 3.87 | 3.95 | 3.74 | ↑ | ↑ |
| <i>Worst Site</i> | 15.03 | 4.75 | 4.35 | ↑ | ↑ |
| <i>Availability (% < 9m (historical 3-sigma))</i> | 99.98% | 100% | 100% | ↑ | → |

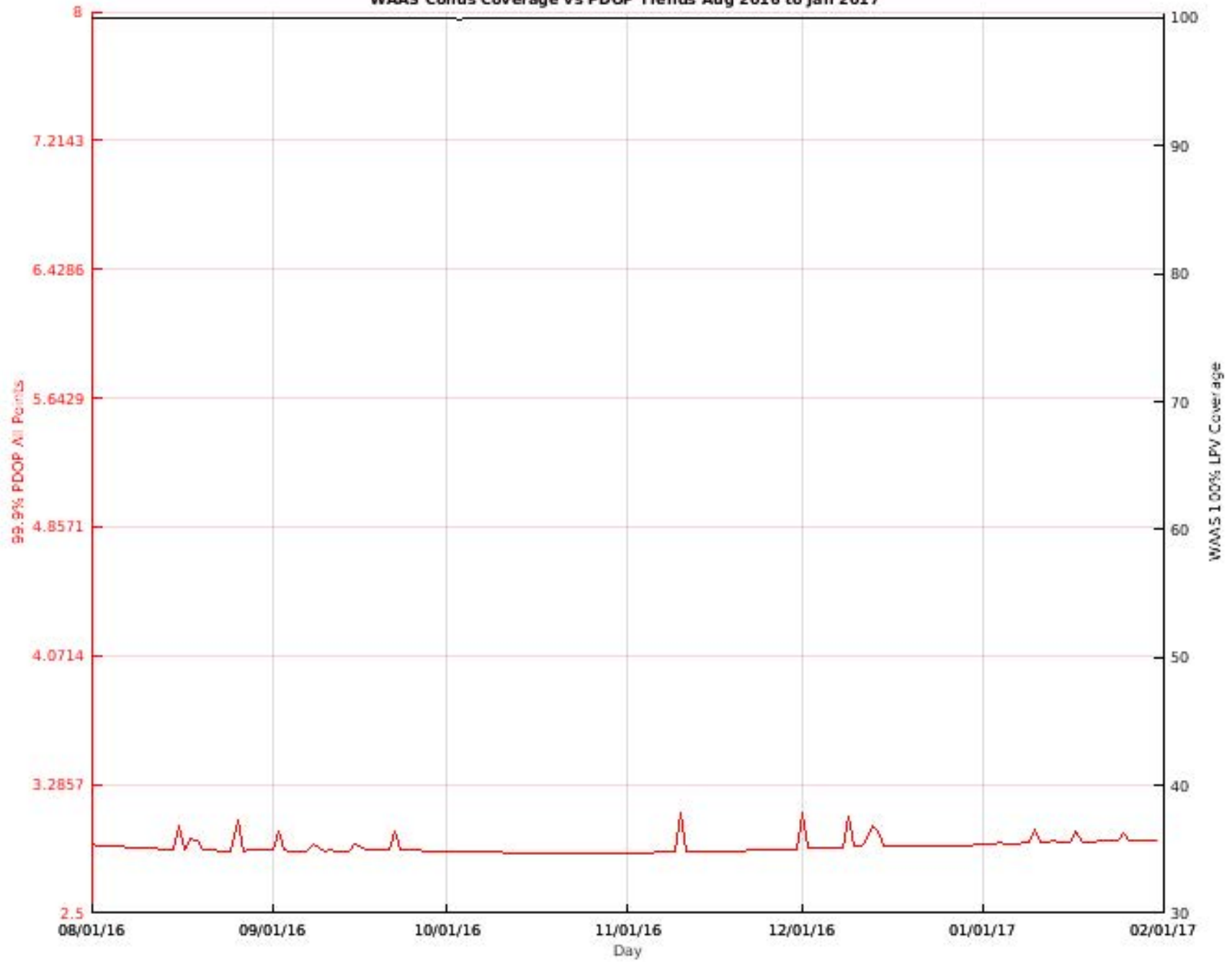
Key: ↑ improving ↓ worsening → no significant change

Long Term is current month vs. prior 24 months; Short Term is current month vs. prior month

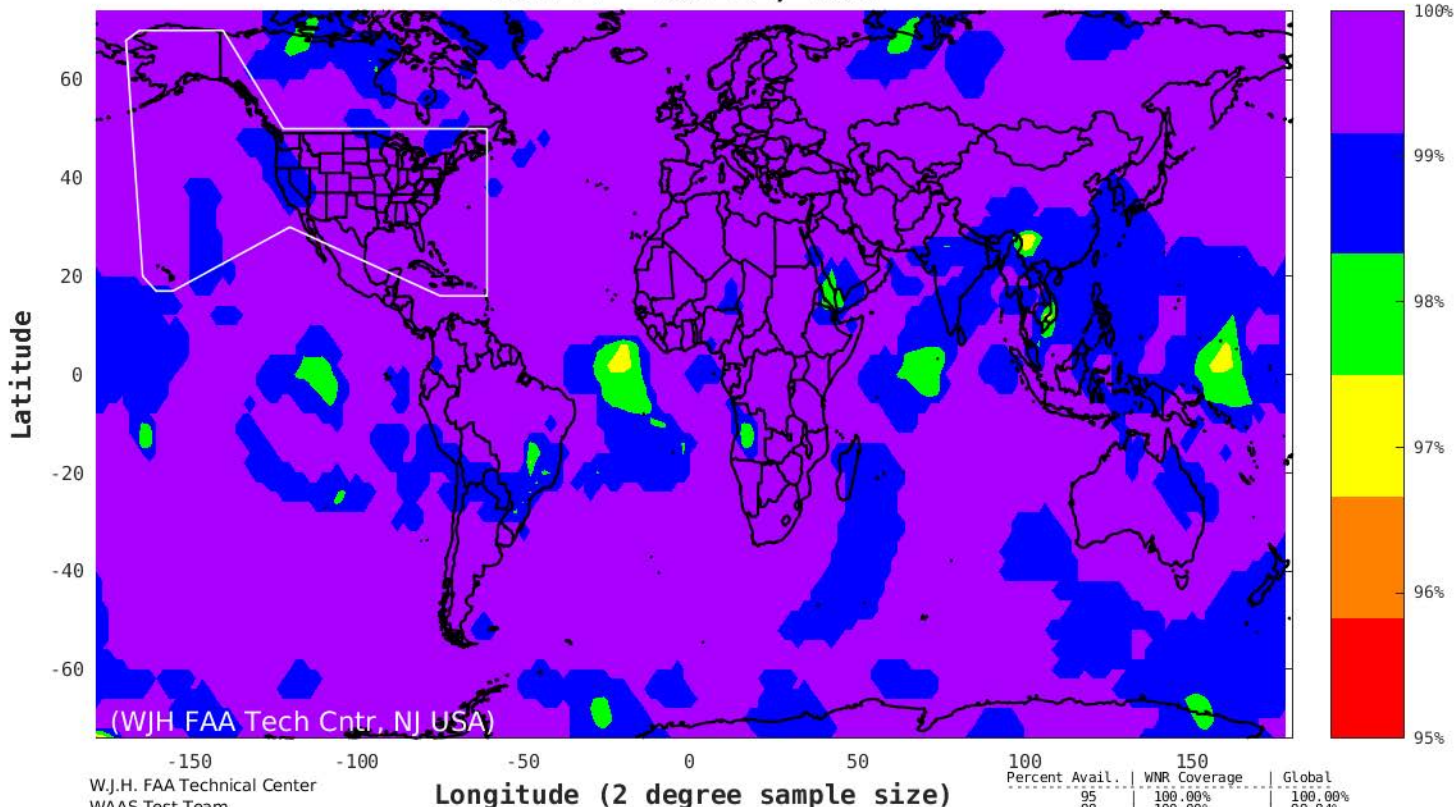
PDOP Trends Aug 2016 thru Jan 2017



WAAS Conus Coverage vs PDOP Trends Aug 2016 to Jan 2017

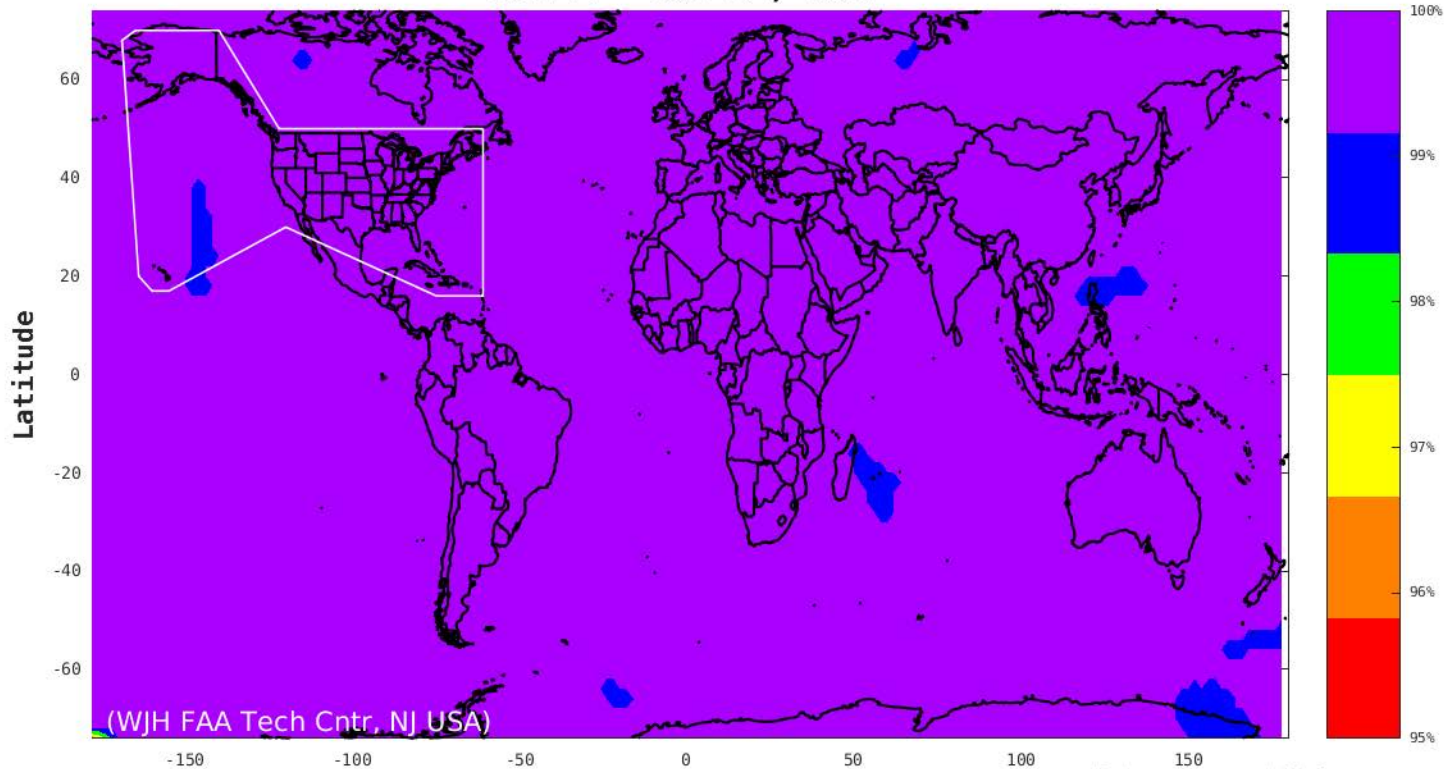


**SPS RAIM RNP 0.1 (HAL = 185m) Availability
 FD Only, SA Off, without Baro-Aiding
 Jan 1 - Jan 31, 2017**



W.J.H. FAA Technical Center
 WAAS Test Team
 03/02/17

**SPS RAIM RNP 0.3 (HAL = 556m) Availability
 FD Only, SA Off, without Baro-Aiding
 Jan 1 - Jan 31, 2017**



W.J.H. FAA Technical Center
 WAAS Test Team
 03/02/17

Longitude (2 degree sample size)

| Percent Avail. | WNR Coverage | Global |
|----------------|--------------|---------|
| 95 | 100.00% | 100.00% |
| 98 | 100.00% | 100.00% |
| 99 | 100.00% | 100.00% |
| 100 | 98.32% | 99.07% |

GPS World PDOP 99.99% Index Jan 2017

