

WAAS Technical Report
William J. Hughes Technical Center
Pomona, New Jersey

DR #103
WAAS Reaction to Iono
Activity
August 5 & 6 2011

Presented to: WAAS Team

By: Stephen Gordon

Date: August 7, 2011



**Federal Aviation
Administration**



Overview

- **LPV Coverage was degraded for ~55% of CONUS (northern sections of CONUS)**
- **LPV Coverage was degraded for all of Alaska**
- **Extreme Storm Detector (ESD) did not trip**
- **Operators received significant events that indicated high GIVE values (22:37 – 00:19)**

08/05/2011 22:37:52	NEW NO NO WRN WMS ZLA CV	757 IGP's with high GIVEI (IGP)	08/05/2011 22:37:52	POC
08/05/2011 22:37:52	NEW NO NO WRN WMS ZDC CV	757 IGP's with high GIVEI (IGP)	08/05/2011 22:37:52	POC
08/05/2011 22:37:52	NEW NO NO WRN WMS ZTL CV	757 IGP's with high GIVEI (IGP)	08/05/2011 22:37:52	POC
08/05/2011 22:37:52	RES NO YES WRN WMS ZLA CV	757 IGP's with high GIVEI (IGP)	08/06/2011 00:19:52	POC
08/05/2011 22:37:52	RES NO YES WRN WMS ZTL CV	757 IGP's with high GIVEI (IGP)	08/06/2011 00:19:52	POC
08/05/2011 22:37:52	RES NO YES WRN WMS ZDC CV	757 IGP's with high GIVEI (IGP)	08/06/2011 00:19:52	POC

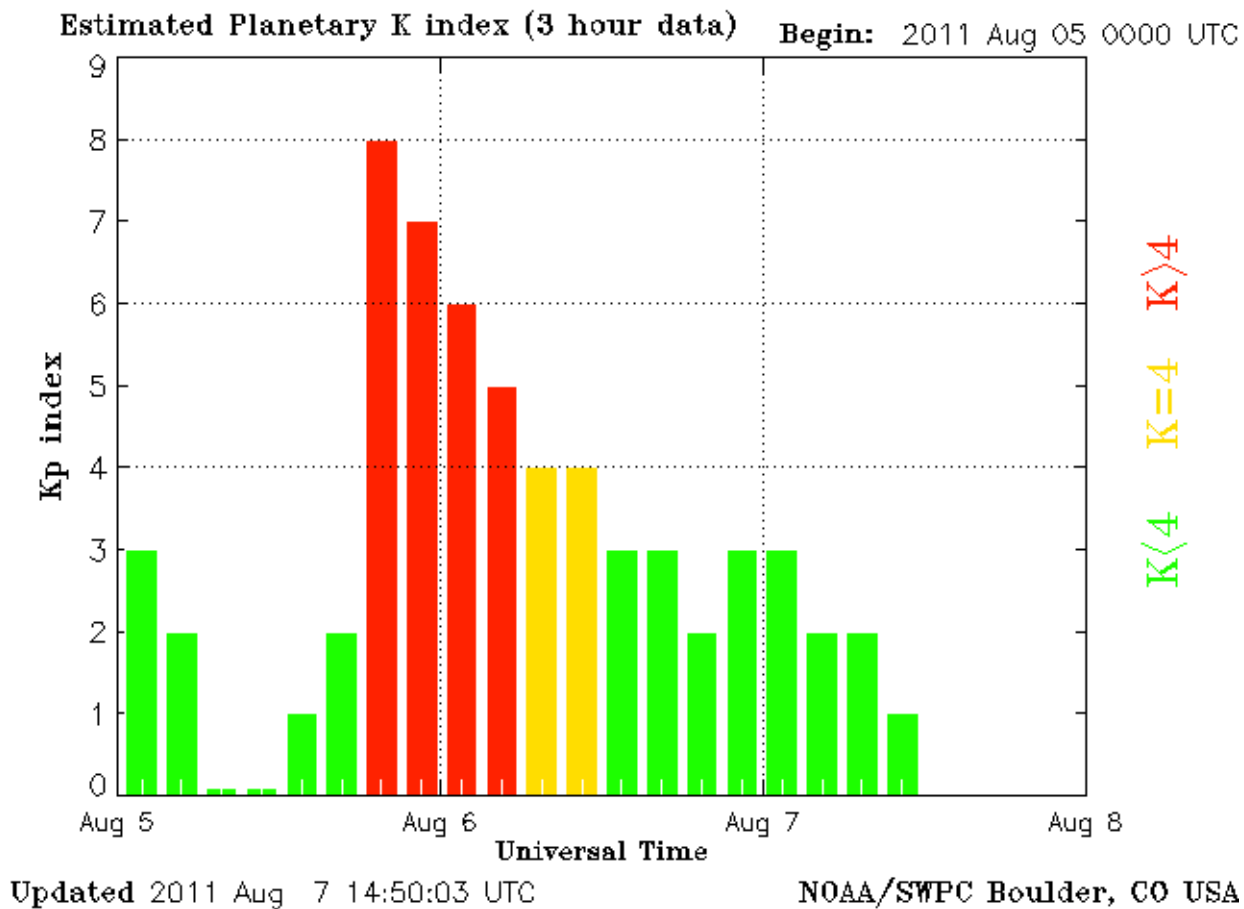


WAAS NOTAM

- **WAAS_NOT_AVBL issued at 22:55**
 - !FDC 1/9752 FDC WAAS NOT AVBL WEF 1108052255
 - !FDC 1/9752 FDC CANCELLED BY FDC 1/9756 ON 08/05/11 23:34
- **WAAS_EXTREME_STORM issued at 23:12**
 - !FDC 1/9755 FDC WAAS VNAV/LPV NOT AVBL WEF 1108052312
 - !FDC 1/9755 FDC CANCELLED BY FDC 1/9759 ON 08/06/11 00:43

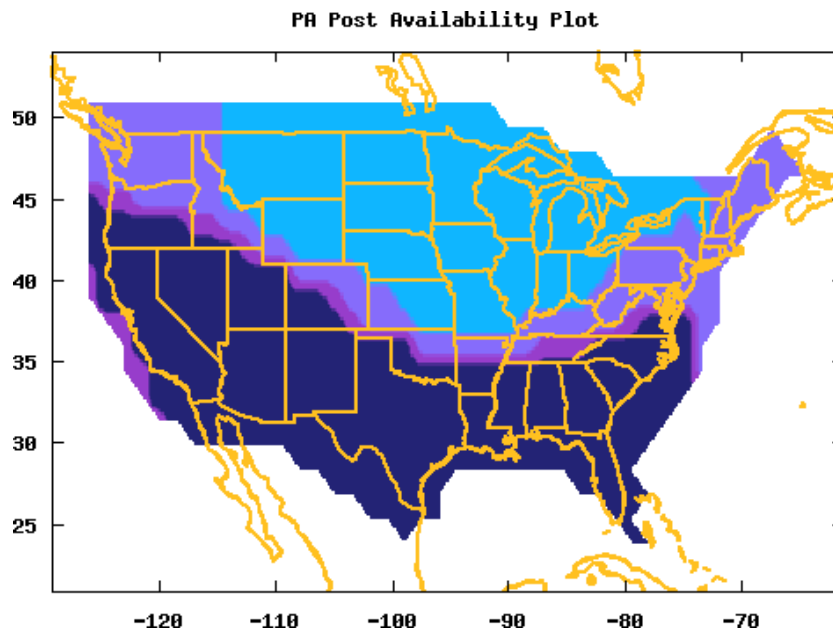


Kp Index

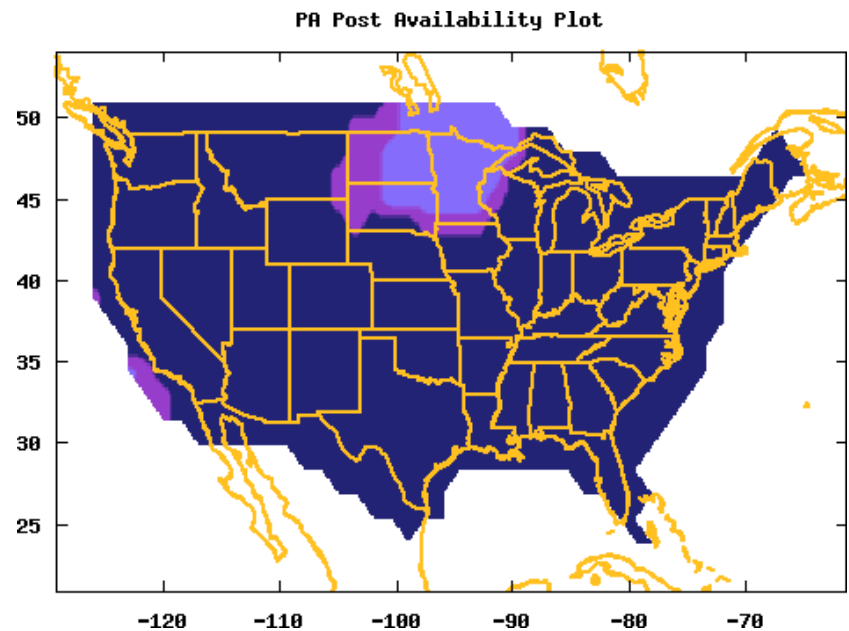


LPV CONUS Coverage – 8/5/11

Field

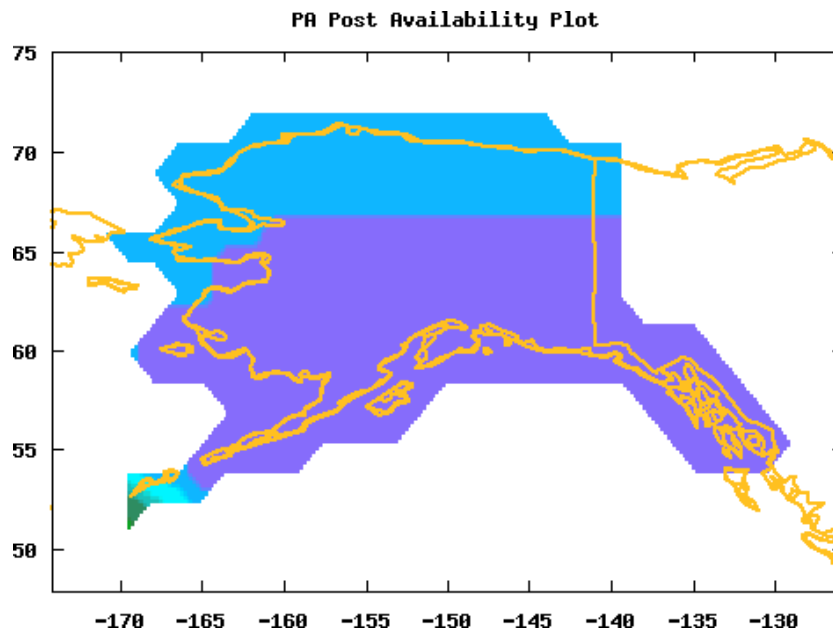


Shadow with Kriging

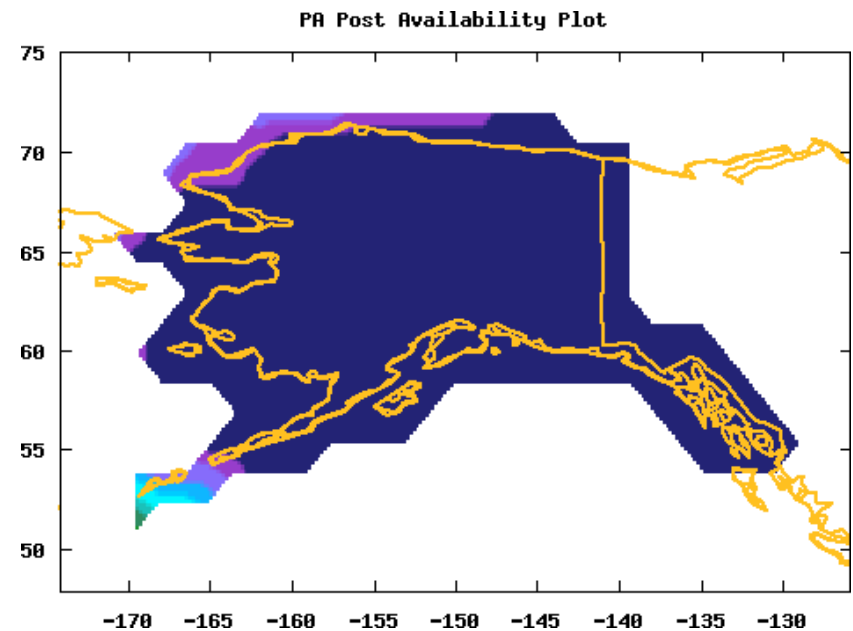


LPV Alaska Coverage – 8/5/11

Field

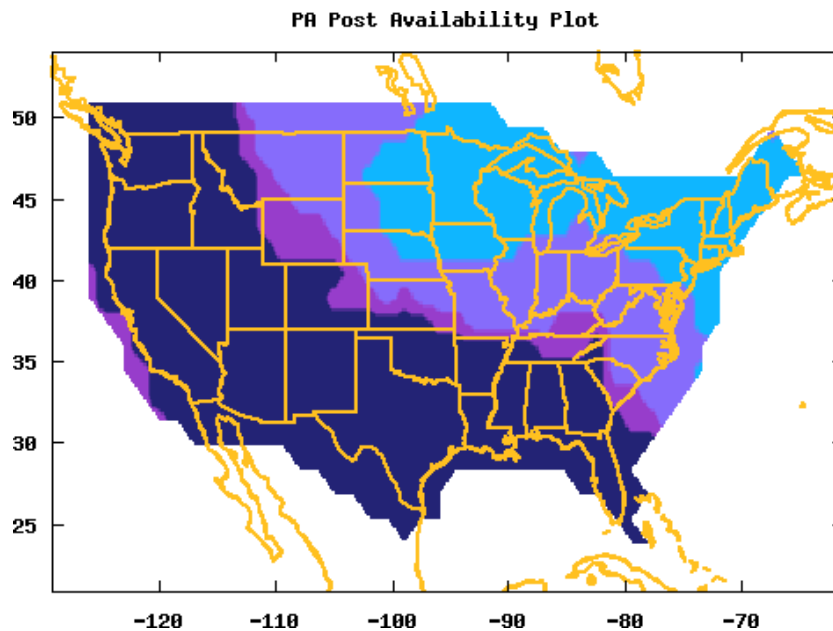


Shadow with Kriging

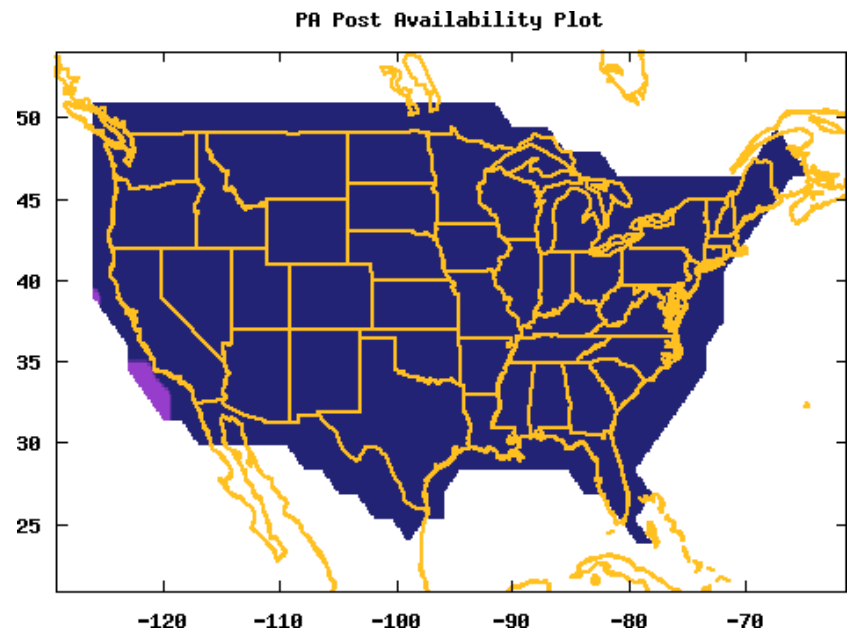


LPV CONUS Coverage – 8/6/11

Field

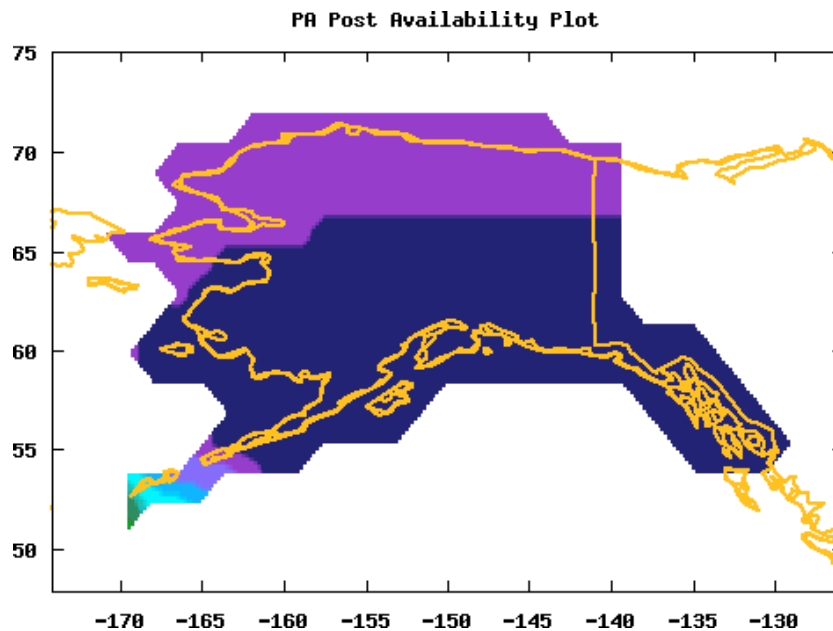


Shadow with Kriging

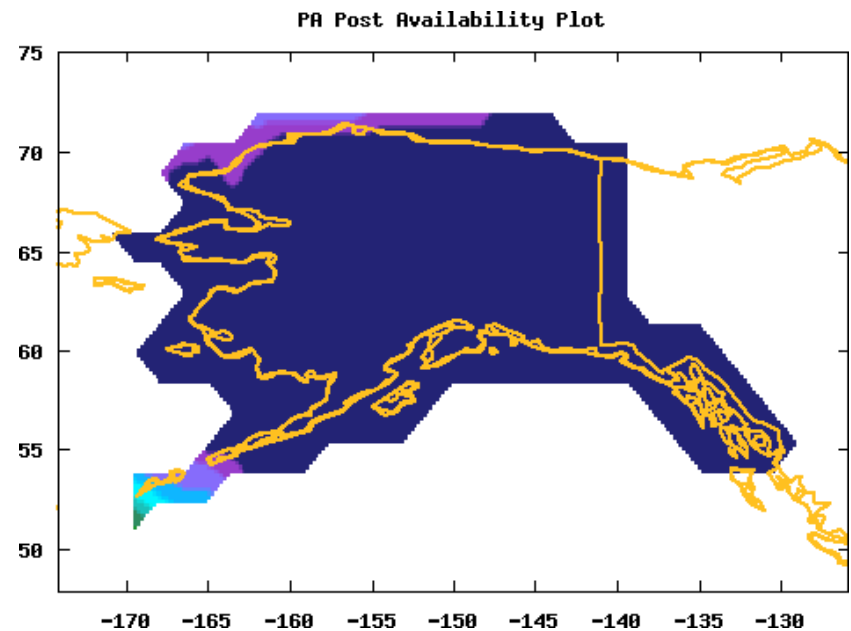


LPV Alaska Coverage – 8/6/11

Field



Shadow with Kriging



LPV Availability

Date	Location	System	95% Contour	99% Contour	100% Contour
8/5/11	CONUS	Field	66.80%	48.16%	45.35%
8/5/11	Alaska	Field	70.73%	0%	0%
8/5/11	CONUS	Shadow with Kriging	100%	94.80%	91.20%
8/5/11	Alaska	Shadow with Kriging	99.23%	97.02%	94.73%
8/6/11	CONUS	Field	81.36%	60.44%	53.71%
8/6/11	Alaska	Field	98.49%	97.02%	69.54%
8/6/11	CONUS	Shadow with Kriging	100%	100%	100%
8/6/11	Alaska	Shadow with Kriging	99.23%	97.02%	96.15%



Summary

- **WAAS Service Outage on 8/5/11 and 8/6/11 caused by Ionospheric Activity**
 - Kp Index reached 8
- **LPV/VNAV Service was degraded in all of Alaska and northern 55% of CONUS**
- **Shadow System running with Release 3a which includes Kriging Algorithm performed significantly better**
 - Release 3a is scheduled to be deployed later this year

