

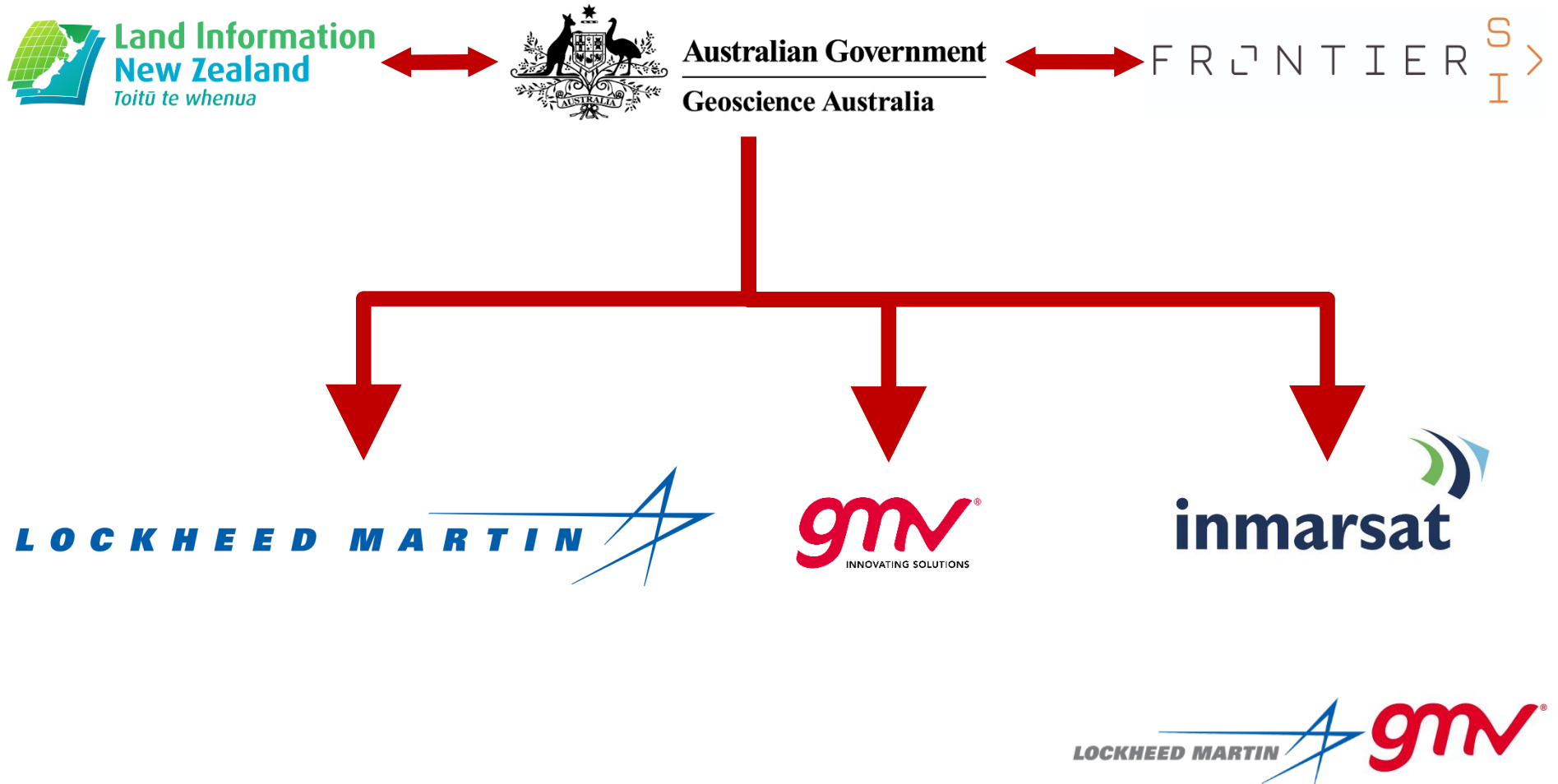


Results on Australia and New Zealand Second Generation SBAS and PPP Augmentation System

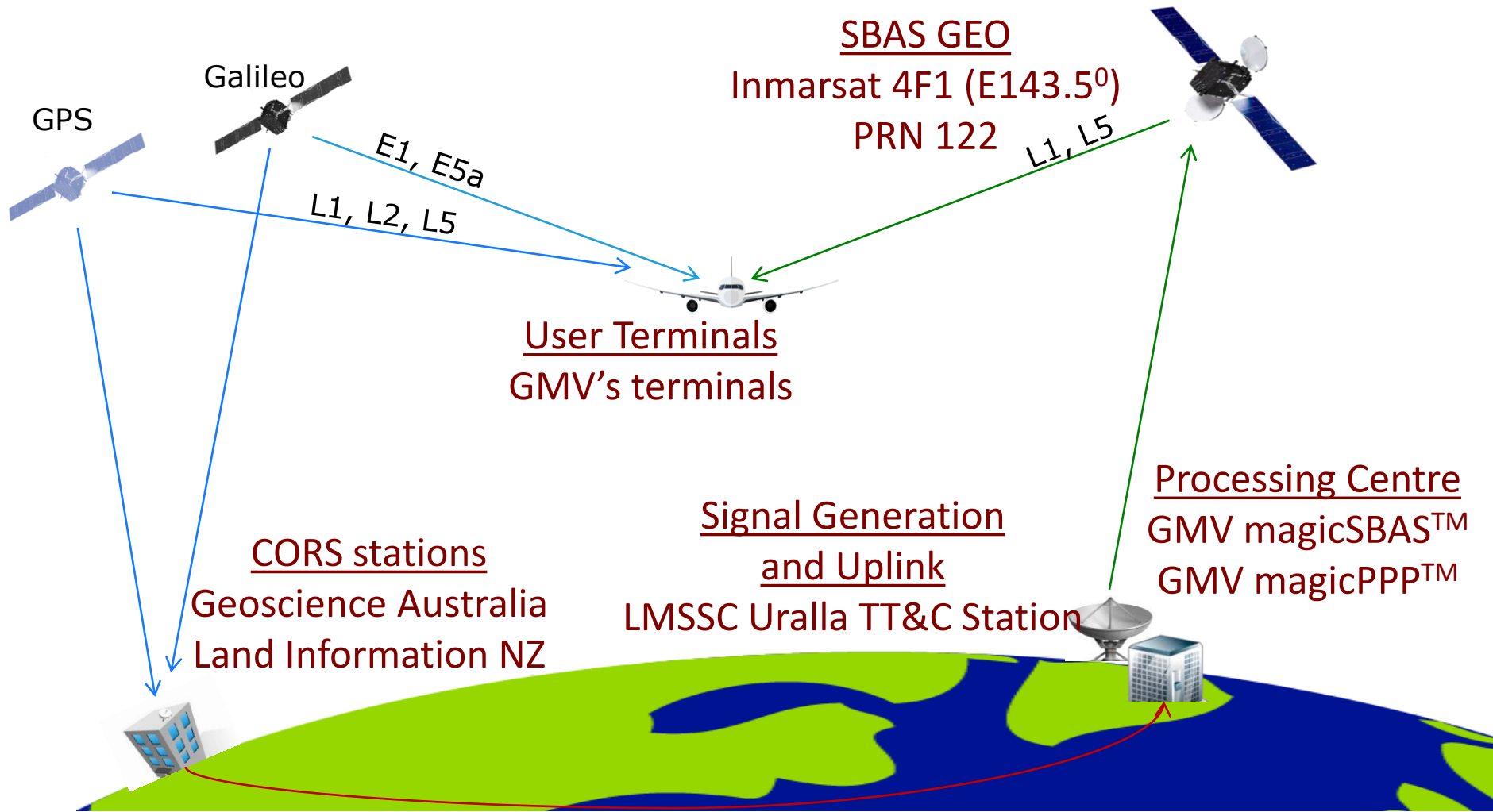
Speaker
Julián Barrios (GMV)
jbarrios@gmv.com

SYSTEM DESCRIPTION

Australia and NZ SBAS Testbed

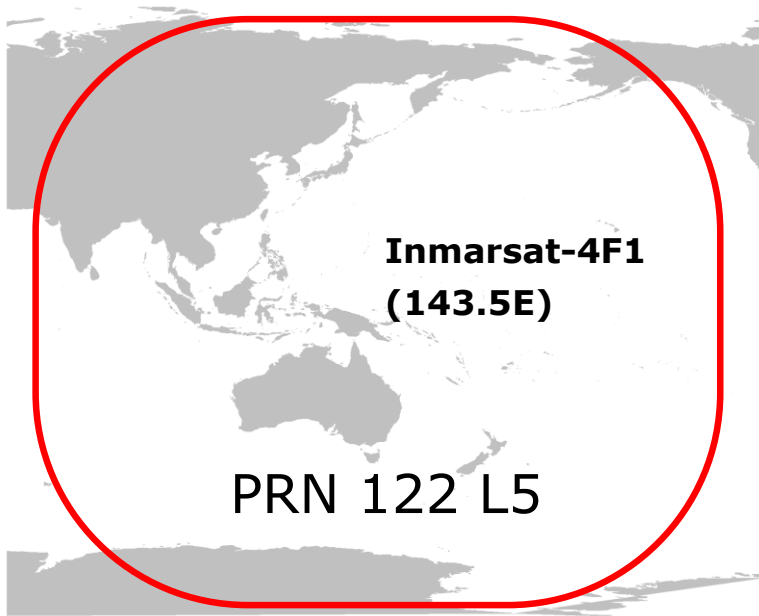


Aus & NZ SBAS Testbed System Overview

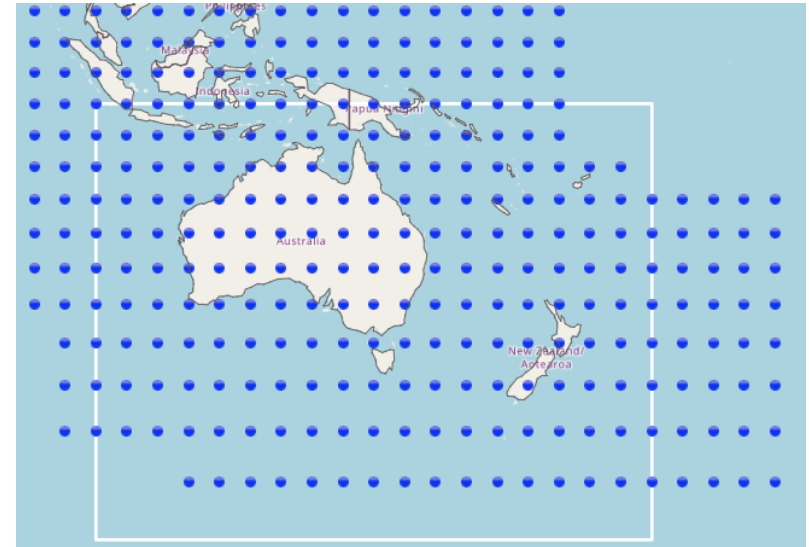


Services Broadcasted

SBAS DFMC & PPP
GPS L1/L2 + Gal E1/E5a



SBAS L1 & PPP
GPS L1/L2



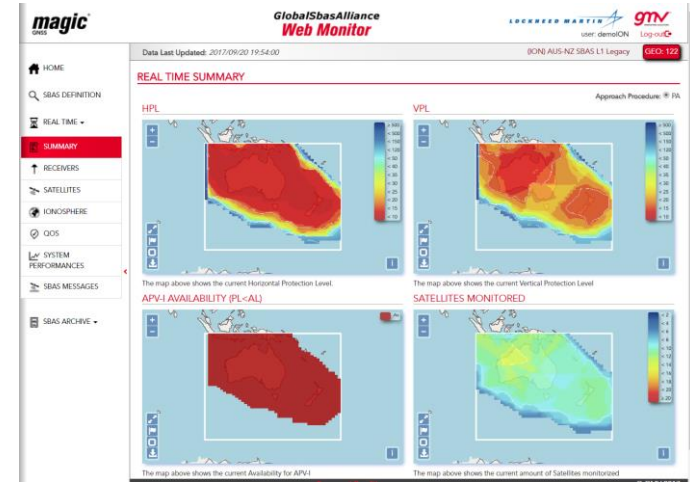
Technology Map (Data Processing)



magicSBAS

magicODTS

**Orbit and Clock Estimation
Ionospheric Estimation
Integrity (GIVE, UDRE, DFRE)
SBAS and PPP message**

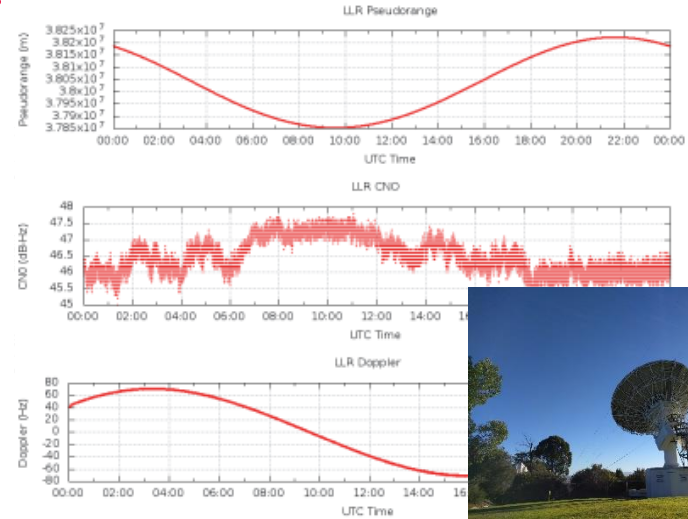


**System Operation
RT System Monitoring
Performance Analysis**

TECHNOLOGY MAP (Uplink System)

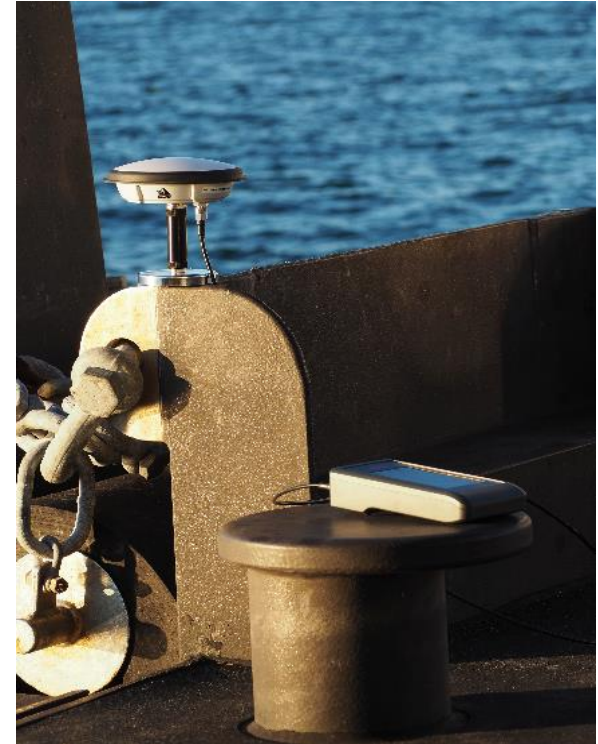


**Uplink Safety Monitor
INTEROPERABILITY
WITH OTHER SBAS IN THE
REGION**



**SIGNAL Generation
Signal Control and Sync
GEO Uplink**

USER SEGMENT SBAS L1, DFMC, PPP



SBAS SYSTEM PERFORMANCES

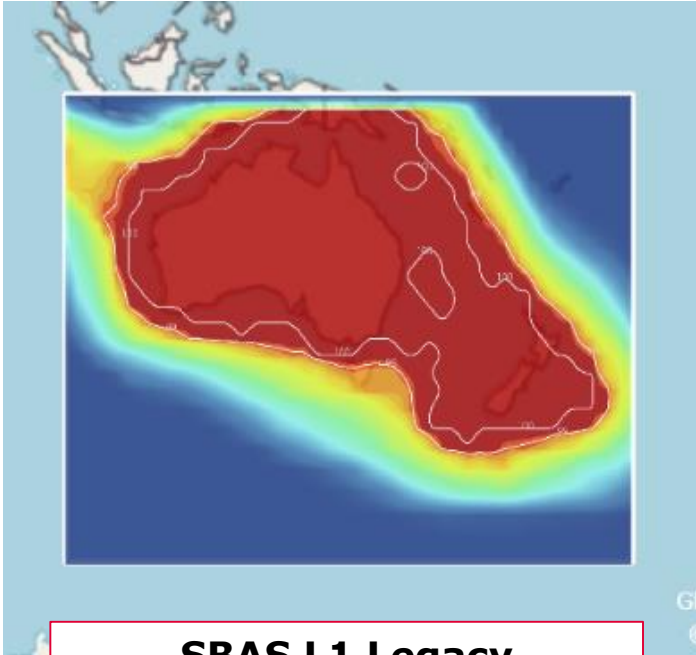
System Availability

SBAS L1 (LEGACY)

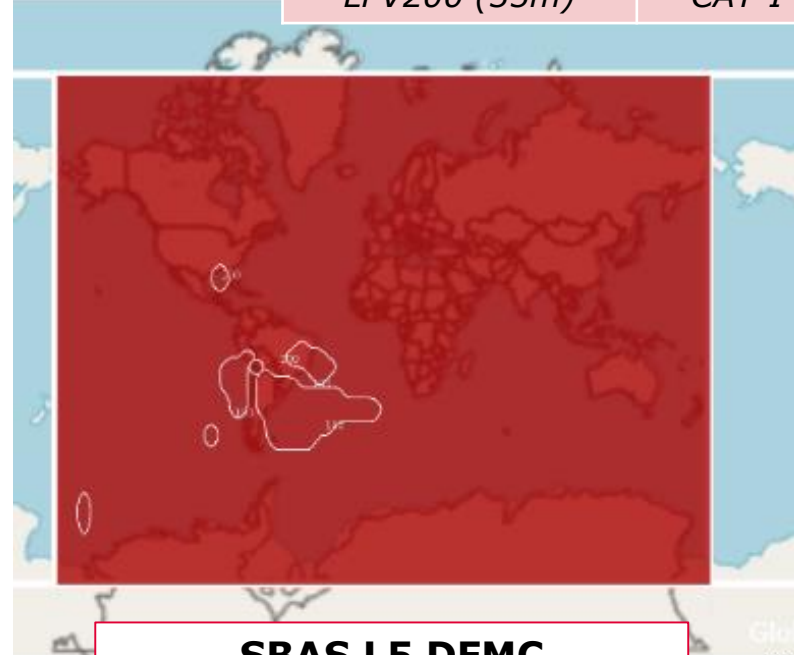
SBAS L5 (DFMC)

APV-I (50m)
LPV200 (35m)

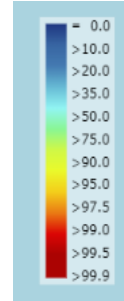
LPV200 (35m)
CAT-I (15m)(*)



**SBAS L1 Legacy
06/06/2018 APV-I
Availability Map**



**SBAS L5 DFMC
06/06/2018 LPV-200
Availability Map**

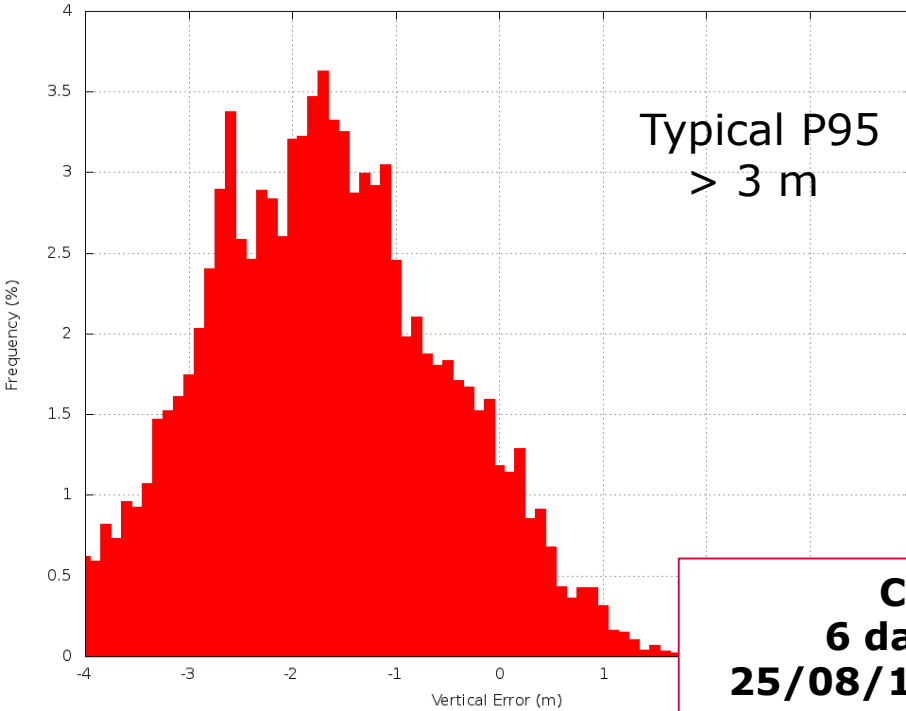


(*) 10 meters Upon complete GPS+GAL constellations

Vertical error GPS Single Frequency

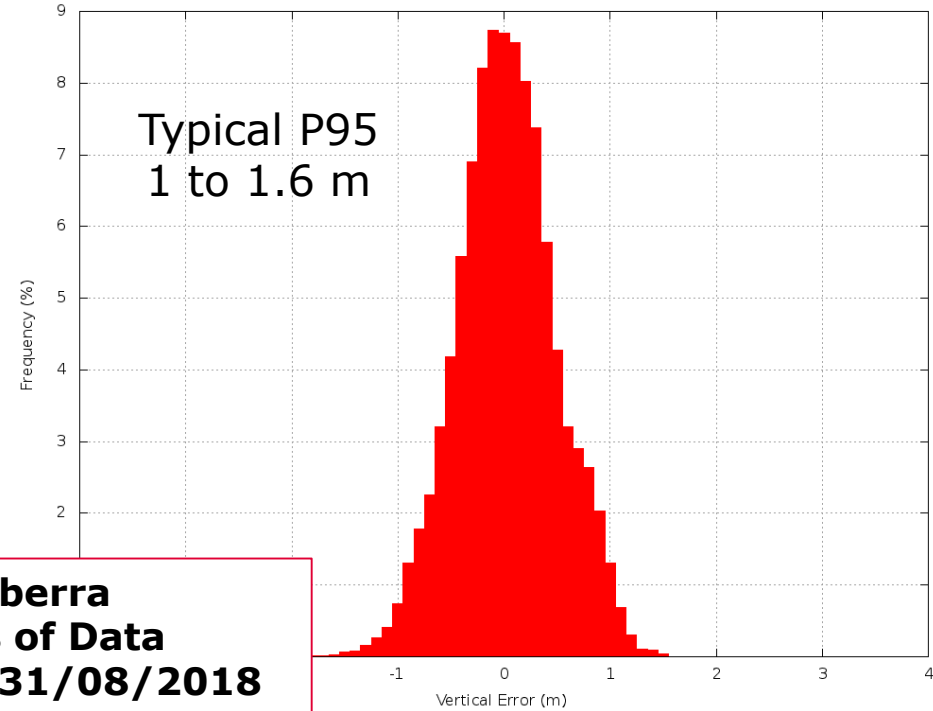
GPS L1

Vertical Error (GPS)



GPS L1 + Legacy SBAS

Vertical Error (GPS_SBAS)

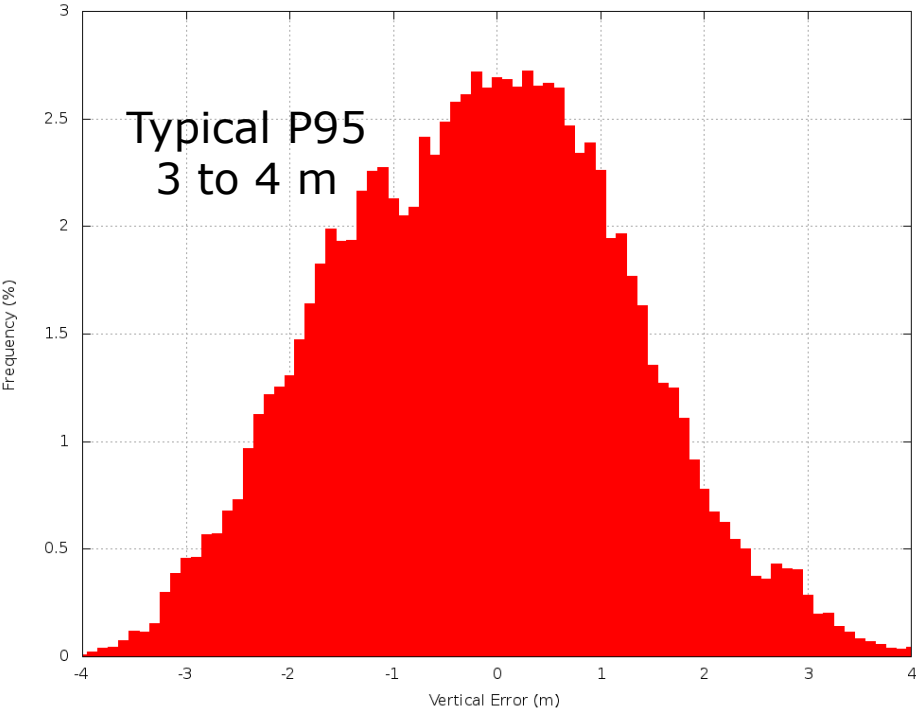


Canberra
6 days of Data
25/08/18-31/08/2018

Vertical error GPS Dual Frequency

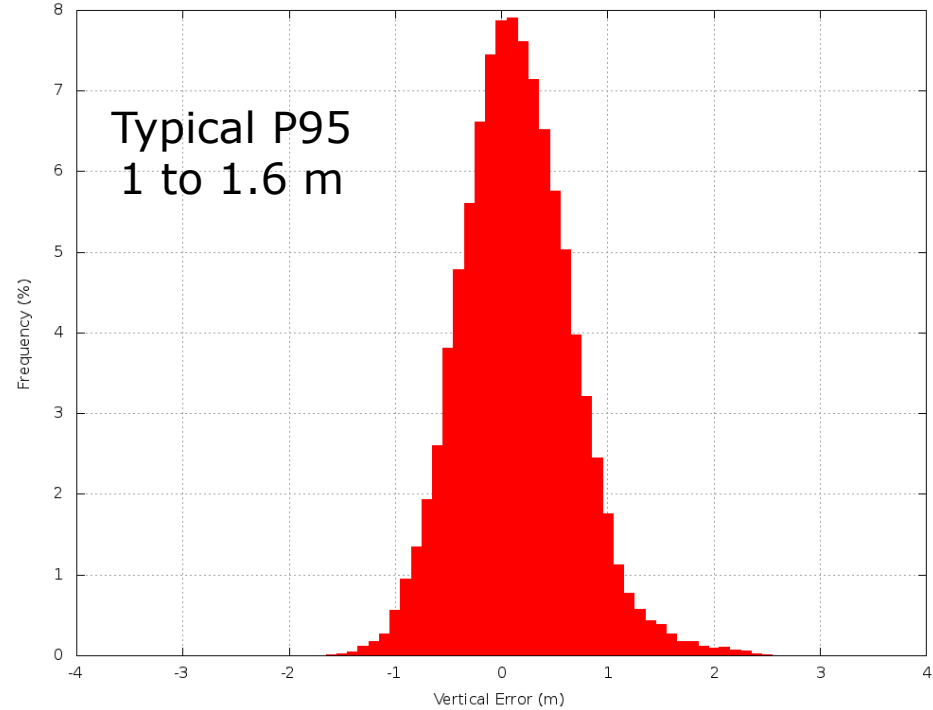
GPS L1/L2

Vertical Error (GPS)



GPS L1/L2 + DFMC SBAS

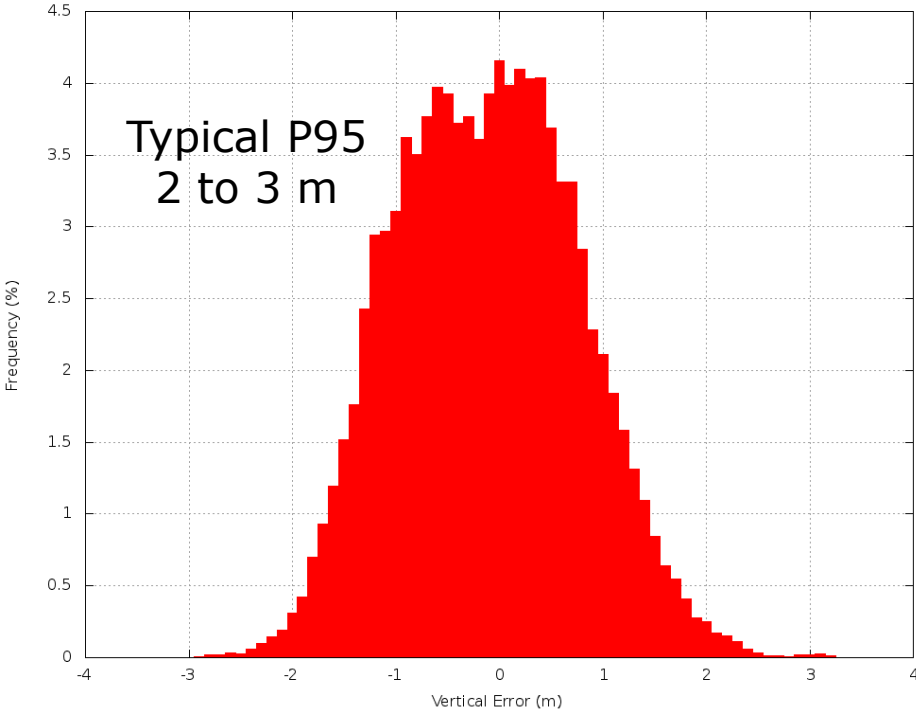
Vertical Error (GPS_SBAS)



Vertical error GPS+GAL Dual Frequency

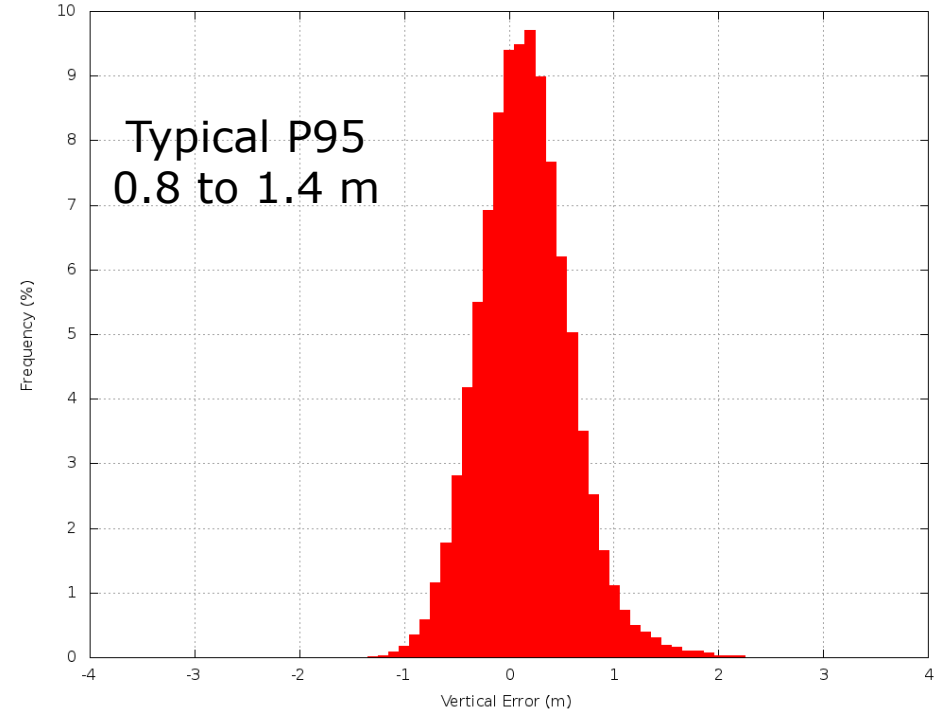
GPS L1/L2 + Galileo E1/E5a

Vertical Error (GPS_GAL)



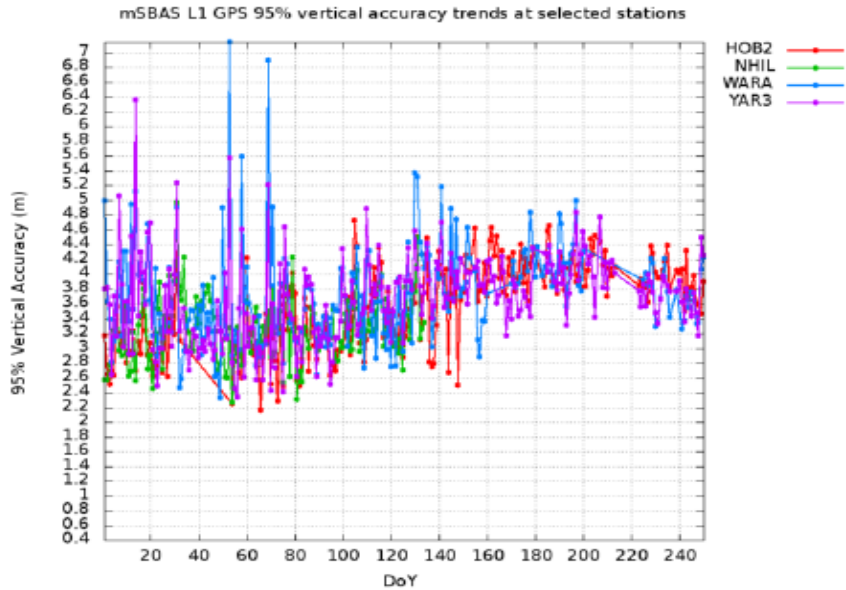
GPS + Galileo + DFMC SBAS

Vertical Error (GPS_GAL_SBAS)

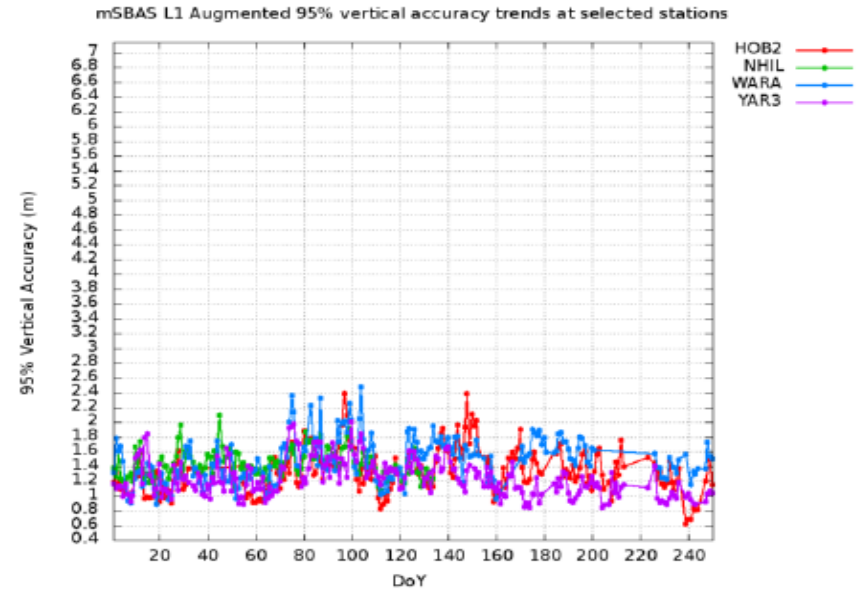


Vertical error at 95% for GPS L1

GPS L1

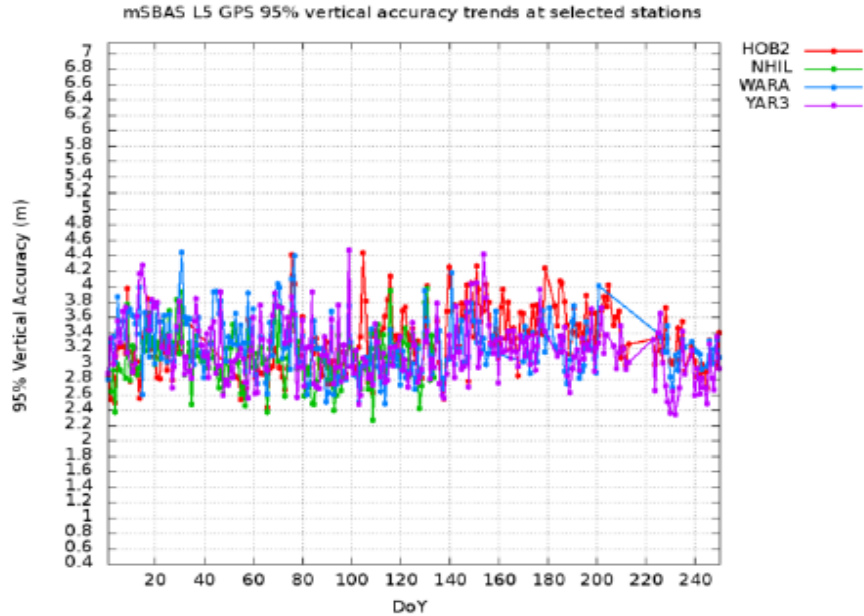


GPS L1 + SBAS L1 Legacy

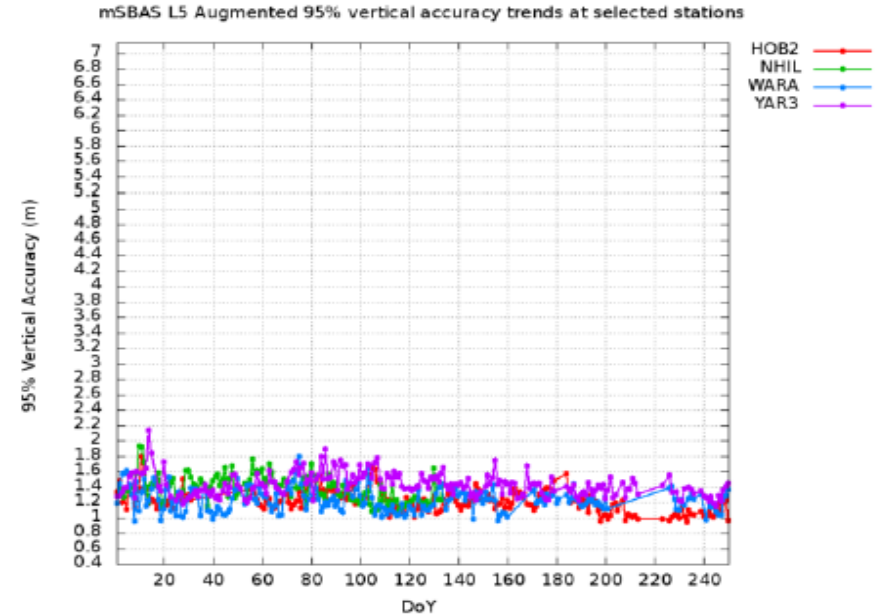


Vertical error at 95% for GPS L1/L2

GPS L1/L2

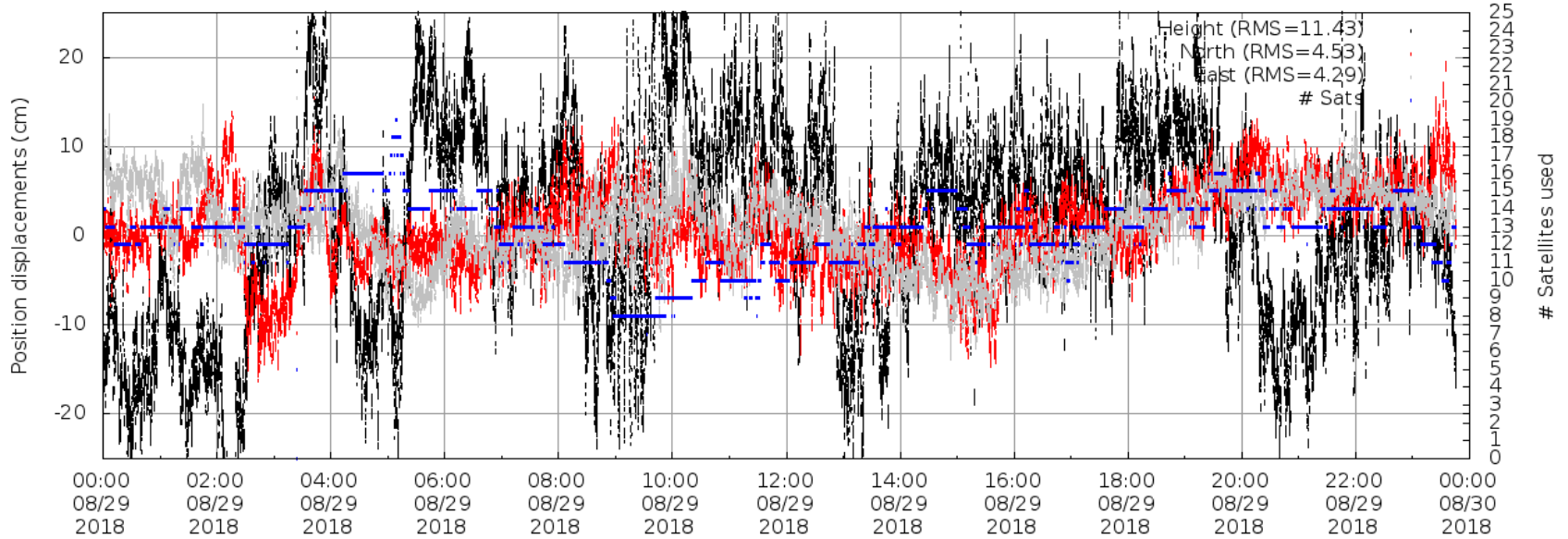


GPS L1/L2 + SBAS DFMC



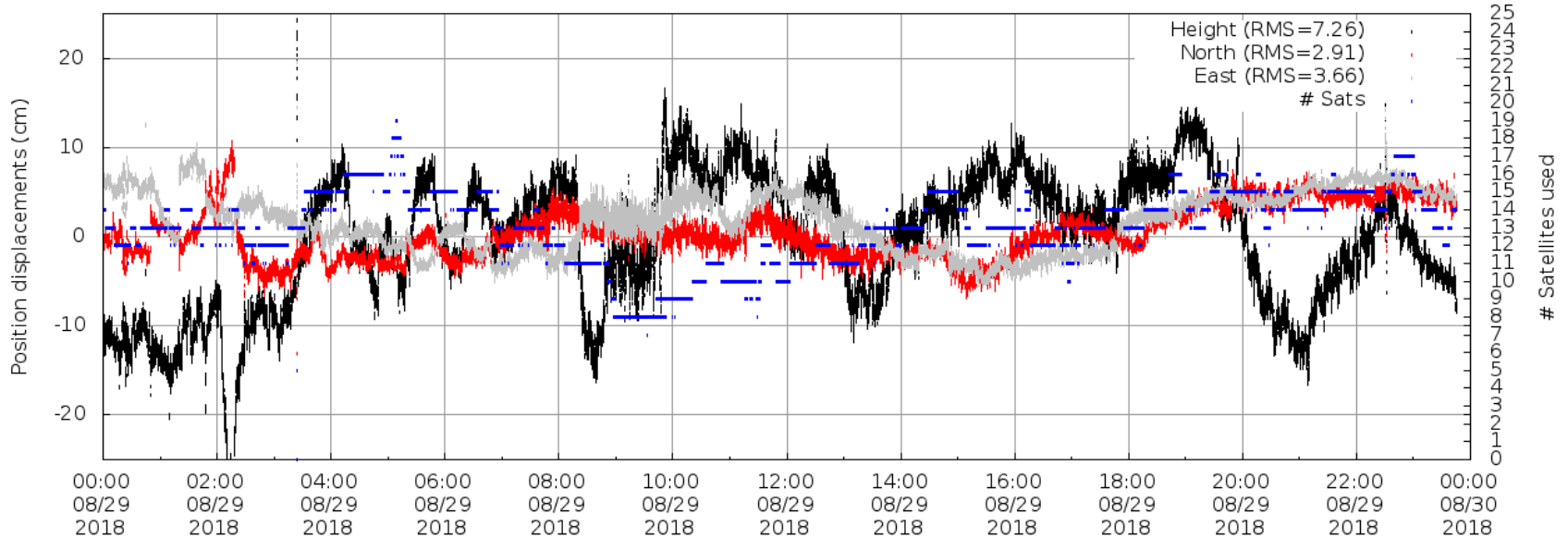
PPP SYSTEM PERFORMANCES

203_SBAS_PPP_SISNET_GE_DFMC



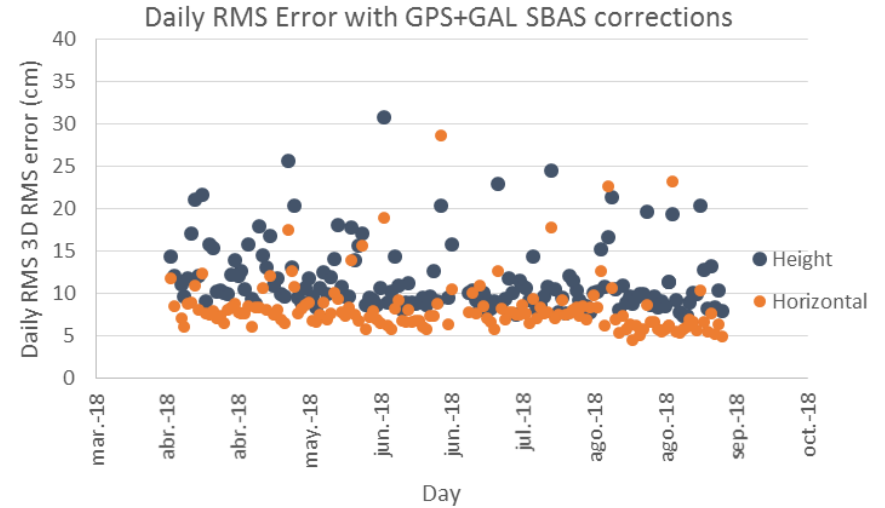
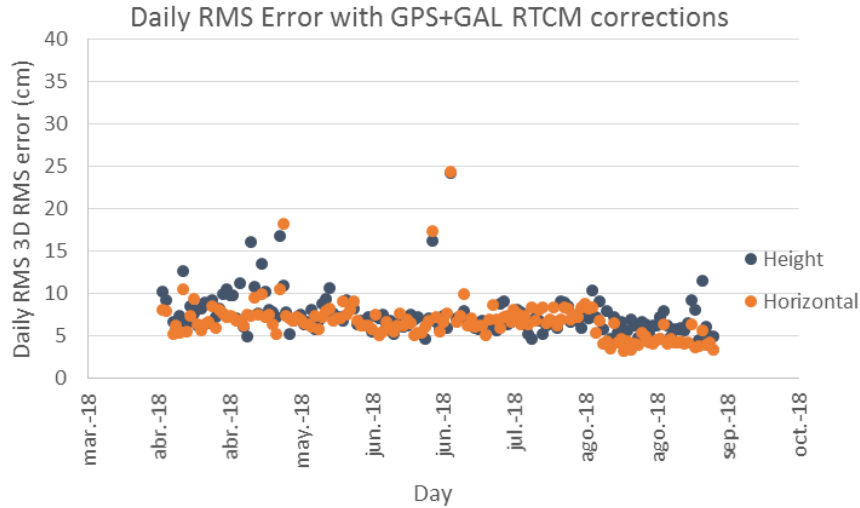
GPS+GAL PPP THROUGH SBAS L5

201_SBAS_PPP_GE_RTCM



GPS+GAL PPP THROUGH RTCM

RT-PPP Daily Analysis



RT-PPP Daily RMS average at PARK station for 5 months

	RTCM GPS	SBAS L1 GPS	RTCM GPS+GAL	SBAS L1 GPS+GAL
Horizontal	8.97 cm	10.17 cm	6.80 cm	8.35 cm
Vertical	10.67 cm	14.47 cm	7.54 cm	11.69 cm

AUS+NZ SBAS TB
All services up since
Oct. 2017
with excellent
performance



THANK YOU

Julián Barrios
jbarrios@gmv.com