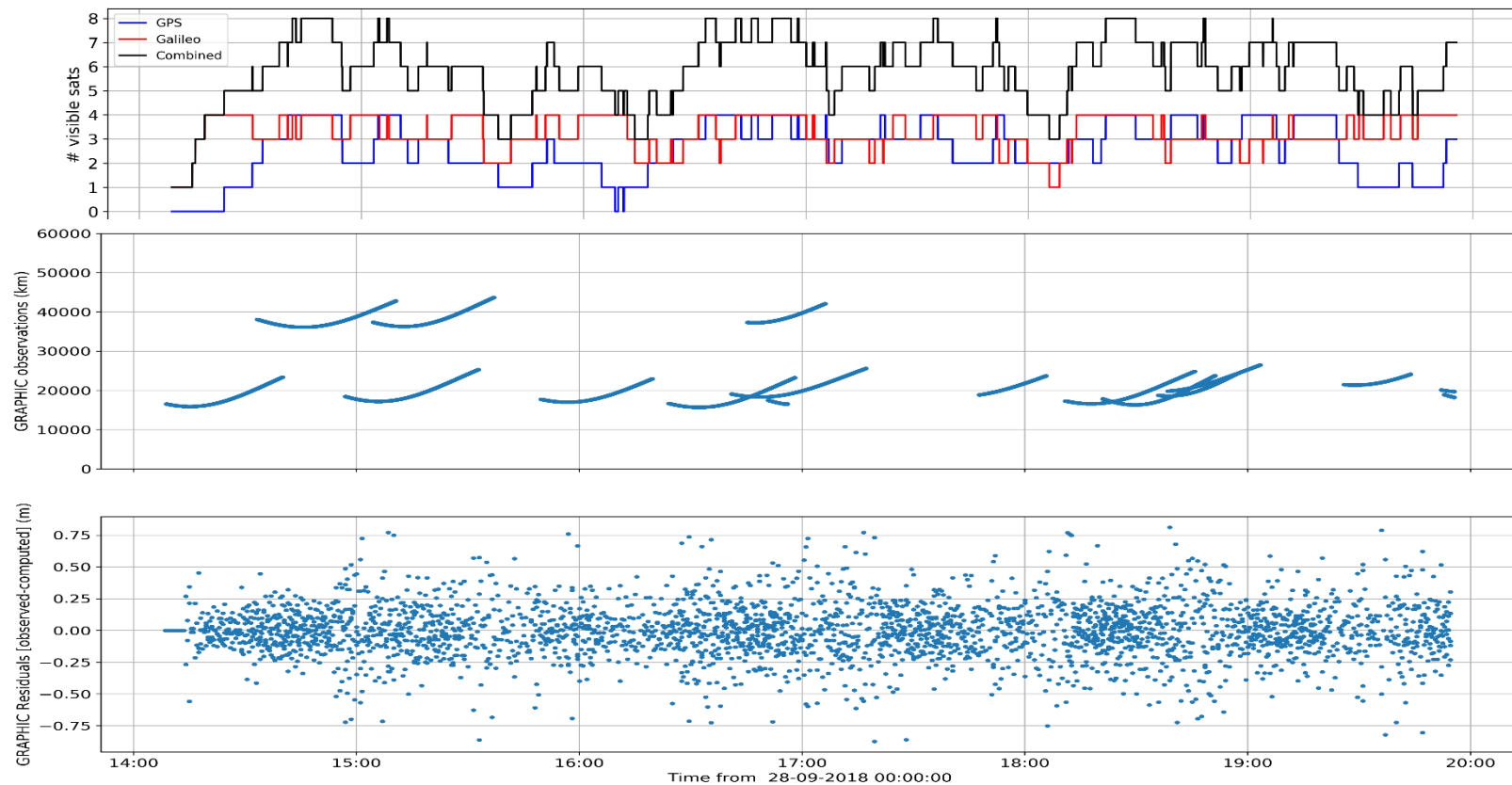


ESA/ESOC - Initial GARISS Orbit Determination Analysis

Werner Enderle
Francesco Gini
Michiel Otten
Erik Schoenemann

- Processing a data arc of 6 hours from 28 Sept 2018
- GARISS OB1 telemetry data stream converted to RINEX
 - Galileo E5a and GPS L5 Code and Carrier Phase Observations
- Processing of single frequency linear combination GRAPHIC (Group and Phase Ionospheric Calibration) for Code and Carrier
- Dynamic Orbit Determination based on ESOC's NAPEOS SW
 - ISS information from NASA – centre of mass, attitude, antenna location etc. used for generation of reference orbit
 - Precise Galileo and GPS orbits from ESOC

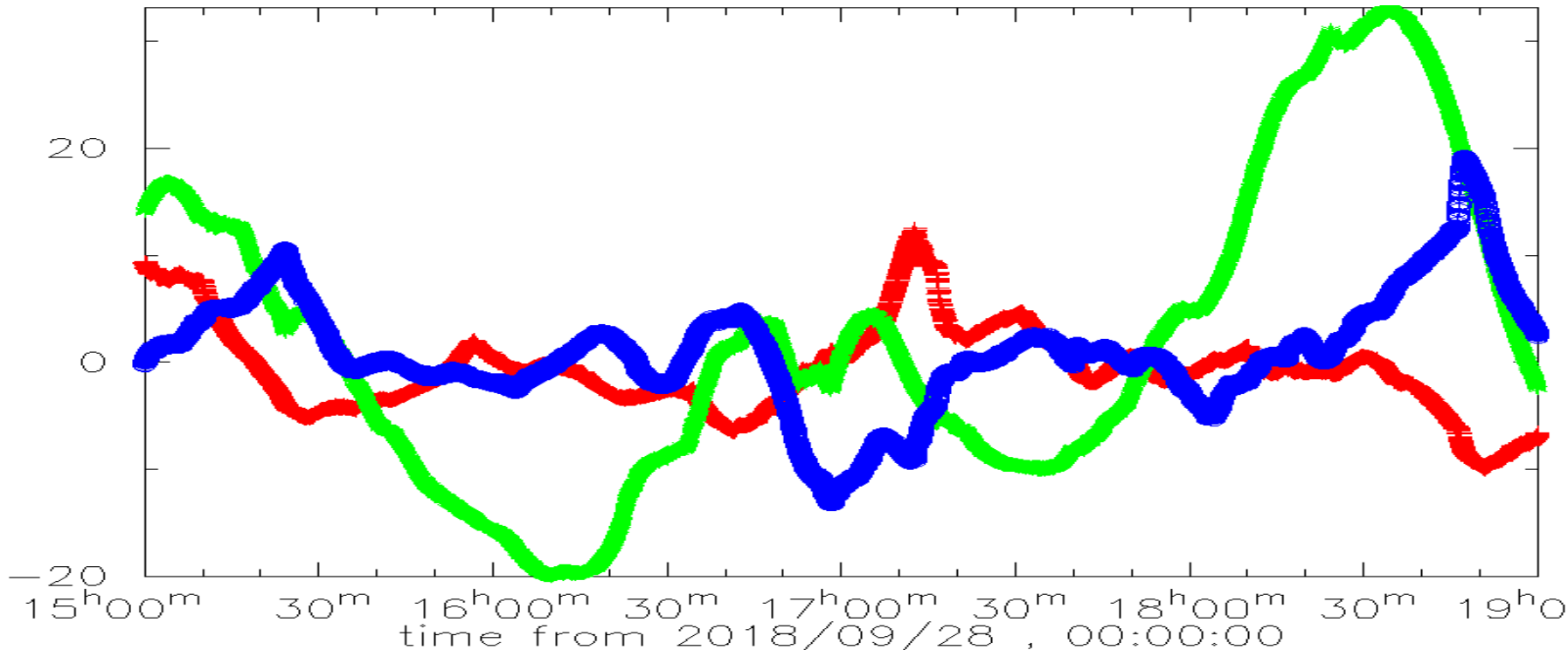
Initial OD/POD Analysis – Results 1/2



Initial OD/POD Analysis – Results 2/2



Comparison between ESOC's OD Solution and NASA's OB1 Reference



Initial OD/POD Analysis – Conclusion



- Initial achieved Orbit accuracy is $\sim 15\text{m}$ (3D RMS), based on comparison between ESOC's solution and NASA's Reference from OB1 telemetry data stream
- Orbit accuracy does not match the very good residuals for the GRAPHIC observations
- Processing of additional data with longer data arcs is expected to improve the orbit accuracy
- Joint investigation with NASA about ISS information as input for ESOC's Precise Orbit Determination process

