

***magic* GNSS** LONG TERM PREDICTION SERVICE

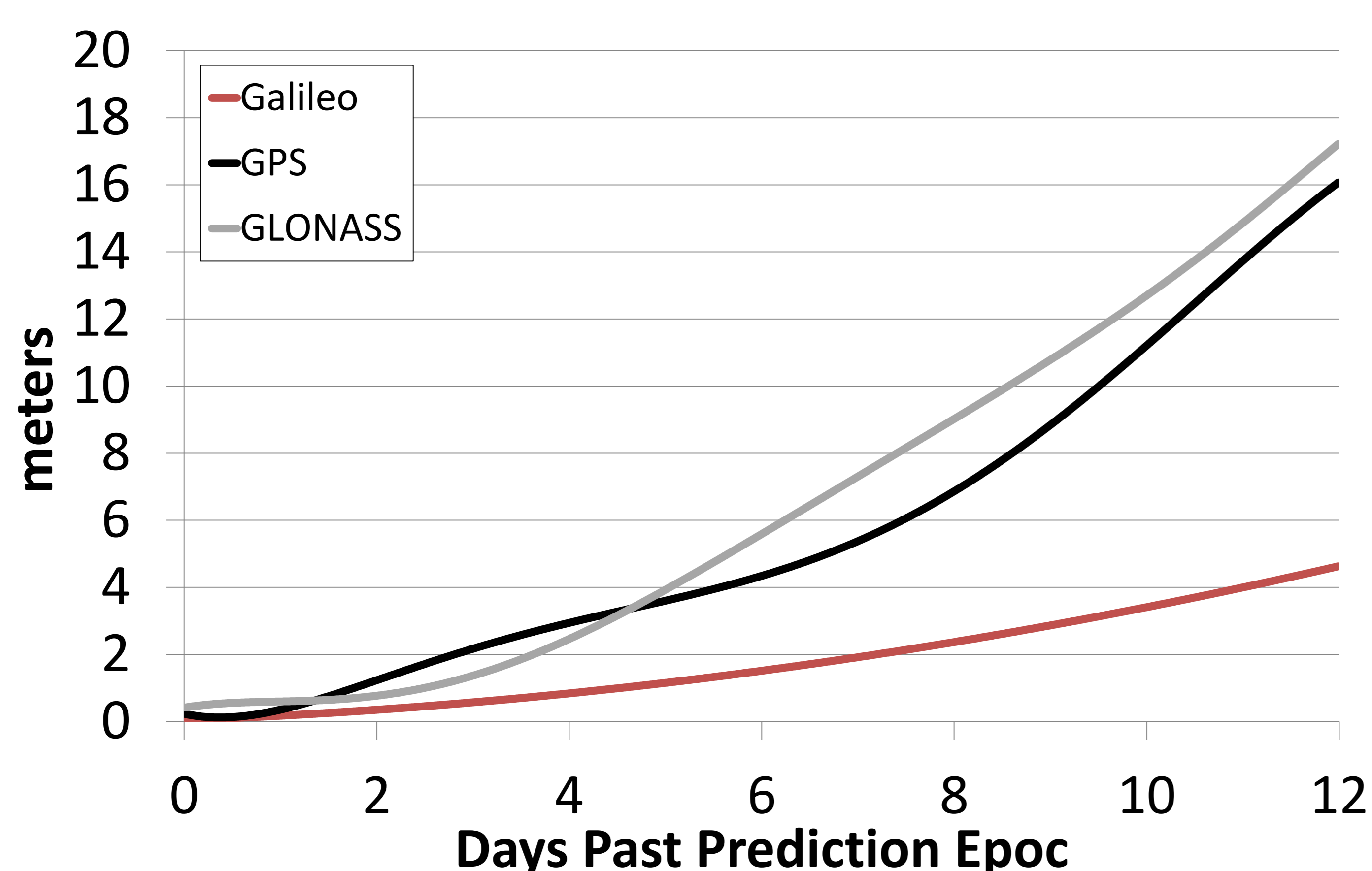
GMV's ***magicGNSS'*** Long Term Prediction Service provides precise and continuously updated navigation messages, to be used for example as input to A-GNSS services.

magicGNSS' Long Term Prediction Service relies on the predicted orbits and clocks obtained with the *magicODTS* platform, which is an state-of-the-art tool to estimate and predict multi-constellation GNSS orbits and clocks. These high accurate orbits and clocks are used to generate the navigation messages, which are the main input product to Assisted GNSS (A-GNSS) techniques. These techniques usually have the goal of reducing the Time To First Fix (TTFF), which can be longer than desirable especially if the receiver is on a harsh conditions environment such as under dense foliage or surrounded by high rise buildings. Besides the obvious operative advantages of a reduced TTFF, it also improves the battery duration since the satellites acquisition procedure is typically one of the most power demanding processes in a GNSS receiver.

In order to generate precise navigation messages, data from a worldwide multi-GNSS station network is processed. Optimal fitting intervals, tailored for each satellite block and constellation are used to compute the predicted clocks in order to maximize the performances.

The Long Term Prediction Service provides the user with navigation messages valid for four different prediction arc lengths. This feature offers flexibility to the end users,

Typical evolution of the User Range Error



making it possible to choose the prediction arc length which fits better for their purposes without losing accuracy.

Together with navigation messages, ***magicGNSS'*** Long Term Prediction Service provides orbits files (.sp3 standard).

magicGNSS' Long Term Prediction Service products are available to the user in a ftp server so that they can be easily downloaded when as needed by means of an Internet connection.

TECHNICAL SPECIFICATIONS

Supported constellations	GPS, GLONASS, Galileo, BeiDou, QZSS
Products	Navigation message and orbit prediction files
Provided formats	Standard .brdc and .sp3 files
Prediction arc lengths	1, 7, 14 and 30 days
Navigation message length	6 hours
Update rate	6 hours
Delivery method	Ftp server
Health status and NANU/NAGU warnings	Information about unavailable satellites automatically provided in the navigation message

Orbit Performance

1 day orbit prediction accuracy*	< 1 m
30 days orbit prediction accuracy*	< 60 m

*Estimated from the comparison between the last day of the prediction service files and the high quality GMV products for that day.