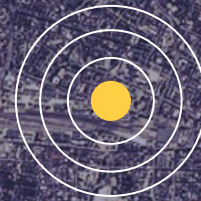


# Spaceopal's precise point positioning service

## NAVCAST



With the aim to actively support and to accelerate the most widespread adoption of Galileo, Spaceopal launches NAVCAST, its GNSS Precise Point Positioning (PPP) service featuring high accuracy positioning enhancement for end users worldwide.

NAVCAST provides Galileo and GPS real time orbit and clock corrections based on algorithm RETICLE (REal-Time CLock Estimation), developed by the German Aerospace Centre (DLR e.V.). Galileo and GPS observations, from more than 100 receivers of the world-wide IGS network, are used to estimate the current corrections which are broadcasted to registered users relaying on the standard NTRIP protocol.

NAVCAST corrections improves the user error down to the centimetre level making it very attractive for a large number of applications.

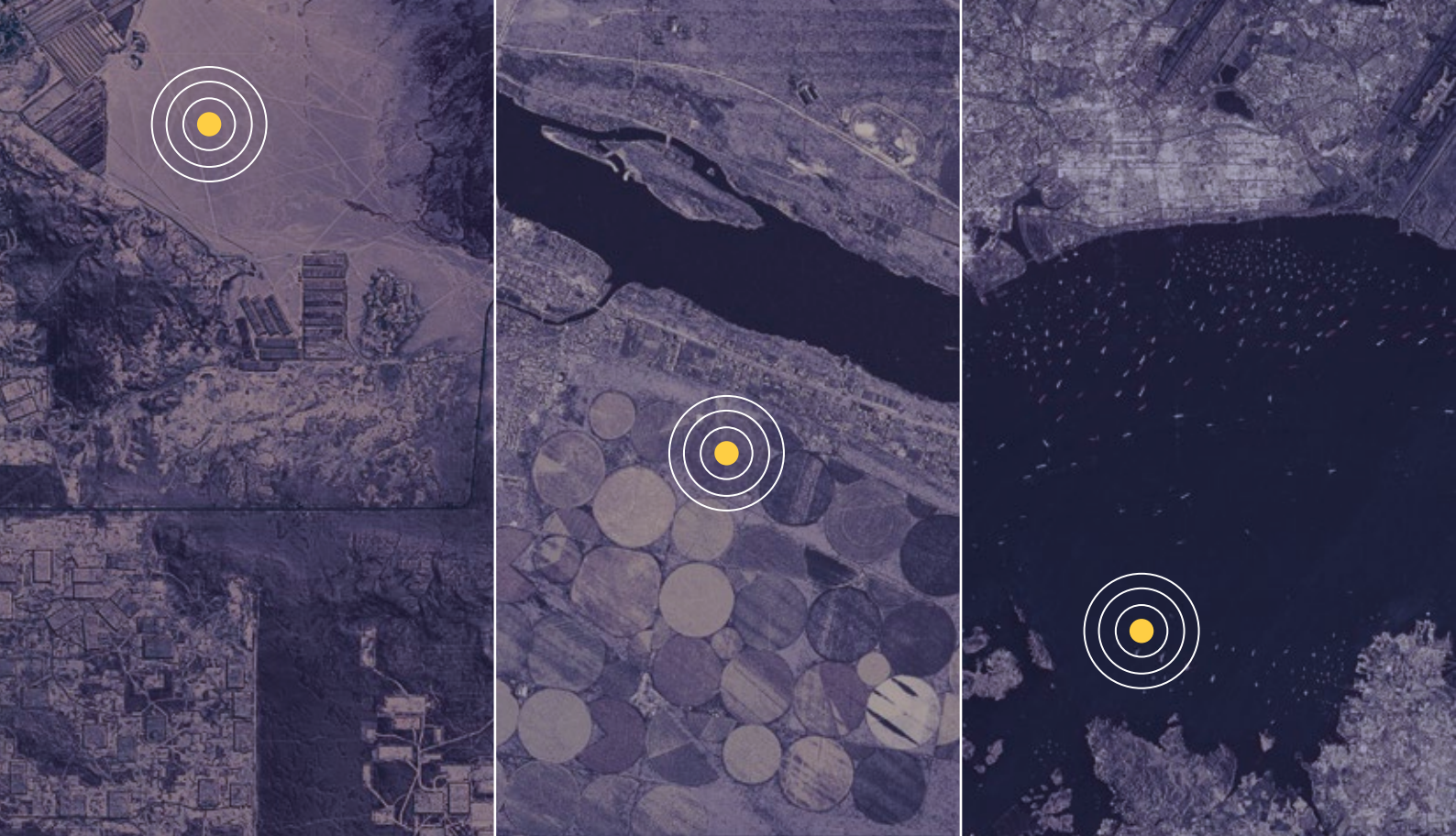
It is now possible to appraise the accuracy levels and convergence times achievable using NAVCAST (Galileo + GPS) corrections combined with a precise point positioning (PPP) engine, on the Spaceopal website ([spaceopal.com](http://spaceopal.com)).

The PPP engine (dual frequency, ionosphere free observations) estimates the local troposphere delays and fixes the carrier phase integer ambiguities, with its performance visualized on the Spaceopal website.

The underlying PPP engine (dual frequency, ionosphere free observations) estimates the local troposphere delays and fixes the carrier phase integer ambiguities. NAVCAST can be considered as proof of concept and Spaceopal's contribution to high accuracy GNSS services. NAVCAST corrections, which are today broadcasted over the Internet, could be in future via satellite constellation (i.e MEO satellites).



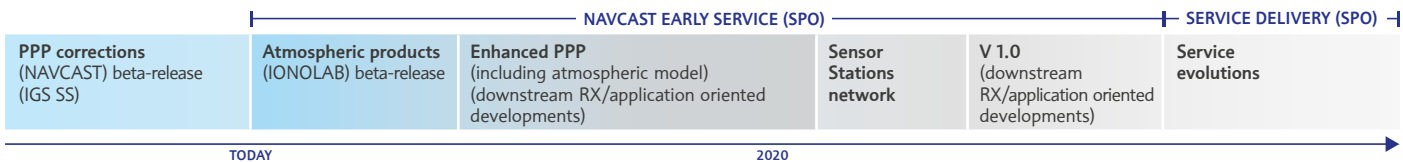




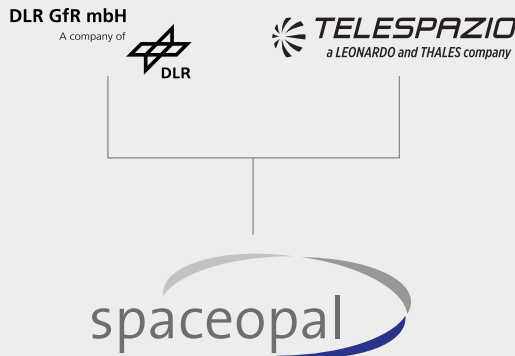
### Galileo Commercial Service – High Accuracy

Galileo is a satellite navigation core-constellation (thus providing positioning and timing information with global coverage) and, together with the SBAS regional augmentation service EGNOS (European Geostationary Navigation Overlay Service), it is the European contribution to the Global Navigation Satellite System (GNSS). Therefore, it is fully interoperable with other satellite

navigation systems (in particular with GPS), but it is currently able to provide more accurate and reliable positioning and timing to the final users. The additional resiliency provided by Galileo Open Service is expected to enable a range of new applications and services that will benefit from increased positioning reliability, thus further driving economic growth in Europe and beyond.



Spaceopal GmbH, a joint venture founded in 2009 by the partners **DLR Gesellschaft für Raumfahrtanwendungen (GfR) mbH** and **Telespazio S.p.A.** (a Leonardo and Thales Company), and its shareholders are involved in the operations of the system since the design phase. On the same occasion of the Galileo Initial Service Declaration and following a complex tendering process that began in January 2015, the European GNSS Agency (GSA) has awarded Spaceopal the Galileo Service Operator (GSOp) contract, with a value of up to EUR 1.5 billion, for the operation and maintenance of the Galileo satellite system and its committed performance level. Spaceopal is then confirmed a strong partner of the GSA in view of the forthcoming full operational capability of the system.



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