



GRACE-FO: seeking an optimal mission scenario

R. Biancale (1), J.-M. Lemoine (1), S. Bruinsma (1), F. Perosanz (1), and E. D. da Costa (2)

(1) CNES/GRGS, Toulouse, France (richard.biancale@cnes.fr), (2) DTP/GRGS, Toulouse, France

The GRACE mission has brought enormous improvement in the knowledge of the Earth's gravity field and particularly in its temporal evolution, which has led to a large amount of applied research in geosciences. It has demonstrated the capability of measuring the effect of gravitation in space to monitor surface water changes globally (through a satellite-to-satellite tracking technique of very high accuracy) and the question of a follow-on mission has been raised.

Of course, spatial and temporal resolution remain coarse, at the level of some 500 km / 10 days to a month, respectively. However, this limitation is not only due to the mission's characteristics, but also to some limitation of aliased effects of higher frequency, such as from ocean tides and from atmosphere perturbations, which are today not modelled precisely enough.

Nevertheless, it is essential to persevere in continuing the monitoring from space of global water changes. That is why CNES/GRGS performed a series of simulations for a proposed GRACE-FO mission under different scenario assumptions, considering a range or range-rate link between two or more satellites.

Characteristics and results of these simulations will be presented.