Charter of the Working Group on GENESIS

Terms of Reference (ToR):

GENESIS is a mission of the European Space Agency (ESA) approved for launch in 2028. It realizes all major space ties on a satellite in a polar orbit at about 6000 km altitude, connecting GNSS receivers, an SLR retroreflector, a DORIS receiver and a dedicated VLBI transmitter. GENESIS holds the potential to significantly enhance the terrestrial reference frame with more accurate ties between the techniques, and it promises to enable scientific investigations with unprecedented levels of accuracy. The objective of this working group is to explore the array of scientific opportunities presented by GENESIS, to formulate optimal observing scenarios, and to develop the methodology for a consistent integration of GENESIS data into future ITRF realizations with simulations and considering already existing space ties. This working group aims to maximize the utilization of the mission's capabilities.

Goals and Objectives:

This working group is an open forum of the international scientific community to exchange ideas and information, and to work for the best possible implementation of GENESIS and exploitation of its opportunities.

There is close co-operation and exchange with the GENESIS Science Team of ESA including the GENESIS Science Management Board and the GENESIS Science Exploitation Team.

Identify possible scenarios for the utilization of GENESIS for the improvement of the terrestrial reference frame.

Set up and implement a work plan with timeline to make the most promising scenarios possible once data is available. A detailed plan supported by simulation results will be available after two years. Observation data from GENESIS will become available with the launched of the missions, which is planned for 2028.

Get an overview of possible contributions by the various groups to the analysis of GENESIS observations. Help to set up co-operation between the groups to facilitate the best realization of the reference frame with GENESIS.

Review and investigate existing co-locations in space between GNSS, DORIS, and SLR, as well as VLBI observations to satellites.

Formulate and raise questions to address open issues with the GENESIS mission, both on a technique-specific level and the combination level.

Identify and investigate new scientific opportunities, which will become possible with GENESIS.

Members (max 20 according to IAG bylaws):

Claudio Abbondanza

Mathis Bloßfeld

Johannes Böhm (Chair)

Alexandre Couhert

Rolf Dach

Claudia Flohrer

Susanne Glaser

Rüdiger Haas

Bruce Haines

Urs Hugentobler

Ozgur Karatekin

Frank Lemoine

Benjamin Männel

Lucia McCallum

Oliver Montenbruck

Arnaud Pollet

Markus Rothacher

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Correspondent members:

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Daniel Arnold

Kyriakos Balidakis

Yoaz Bar-Sever

Grzegorz Bury

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Adrian Jäggi

Alexander Kehm

Lisa Kern

Tomasz Kur

Sylvain Loyer

Lotfi Massarweh

Jolanta Nastula

Axel Nothnagel

Toshi Otsubo

Felix Perosanz

Alvaro Santamaria

Matthias Schartner

Patrick Schreiner

Harald Schuh

Florian Seitz

Manuela Seitz

Vishwa Singh

Benedikt Soja

Peter Steigenberger

Luca Weinem

Helene Wolf

Rimsky Wolfs

to be continued

Ex-officio members:

Detlef Angermann (GGOS)

Robert Heinkelmann (IERS)

Jose Rodriguez (GGOS)

Daniela Thaller (IERS)