Breakout Session B2 - Mission Design (Candidate Technology)

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Session contents description

- focus on candidate technology for future satellite gravity missions and Earth system research, advanced mission design and formation flight scenarios:
  - GRACE-like low-low satellite tracking based on microwave or laser links
  - GOCE-like satellite gravity gradiometry with conventional and advanced acceleration measurements
  - special satellite formations and constellations
  - potential application of atomic interferometry
  - use of clock measurements in space and on Earth
  - application of new drag-free and formation control techniques and related propulsion systems technologies
  - spacecraft tracking from ground or space, laser beam pointing system, etc.

Session contents description (2)

- such candidate technology shall generally be reviewed in terms of
  - development status and technological readiness
  - required time for space qualification shall be addressed

- complementary sensor systems (like altimetry, GNSS, SAR) to be combined for obtaining a more complete picture of the complex interaction of the Earth system

Agenda

11:20 Introduction (Jürgen Müller, Stefano Cesare)

11:25 Future gravity mission scenarios involving two pairs of drag-free satellites (Pete Bender, JILA)

11:40 Possible mission architectures for a GRACE follow-on mission including a study on upgraded instrumentation suites, and multiple satellite pairs in moderately-inclined orbits (Bryant Loomis, University of Colorado)

11:55 First developments on laser metrology technologies and drag-free/formation control techniques (Stefano Cesare, TAS-I)

12:10 The ultra sensitive GOCE Accelerometers and their future developments (Jean-Pierre Marque, ONERA)

12:25 Platform design and technologies for future gravity missions (Albert Zaglauer, ASTRIUM GmbH)

12:40 Lunch break

Agenda (2)

14:00 LISA Pathfinder technology developments applicable to future gravity missions (Gerhard Heinzel, Max-Planck-Institut für Gravitationsphysik)

14:15 Advanced Concepts for Ranging and Time Transfer: Applications and Mission Support (Wolfgang Schäfer, TimeTech GmbH)

14:30 Advanced accelerometer/gradiometer concepts based on atom interferometry (Malte Schmidt, Humboldt Universität zu Berlin)

14:45 Transportable optical clocks: towards gravimetry based on the gravitational redshift (A. Görlitz, University of Düsseldorf)

15:00 General discussion, questions/answers, and session wrap-up/conclusions.

Poster

Long Lifetime Orbits for the German Lunar Exploration Orbiter (Peter F. Gath, ASTRIUM GmbH)