衛星と光通信をするポータブル望遠鏡

Transportable telescope system for satellite-ground laser communications

地上ネットワークを利用したサイトダイバーシティを目指して

Site diversity using terrestrial network

望遠鏡の特長

Features of the transportable telescope system

- 分解して再構築できる移動設置が容易な設計
  Designed to be decomposed and rebuilt as a transportable station

- 衛星追尾方向の特異点を排除する三軸駆動方式の採用
  Triaxial drive to eliminate singularity in the satellite tracking direction

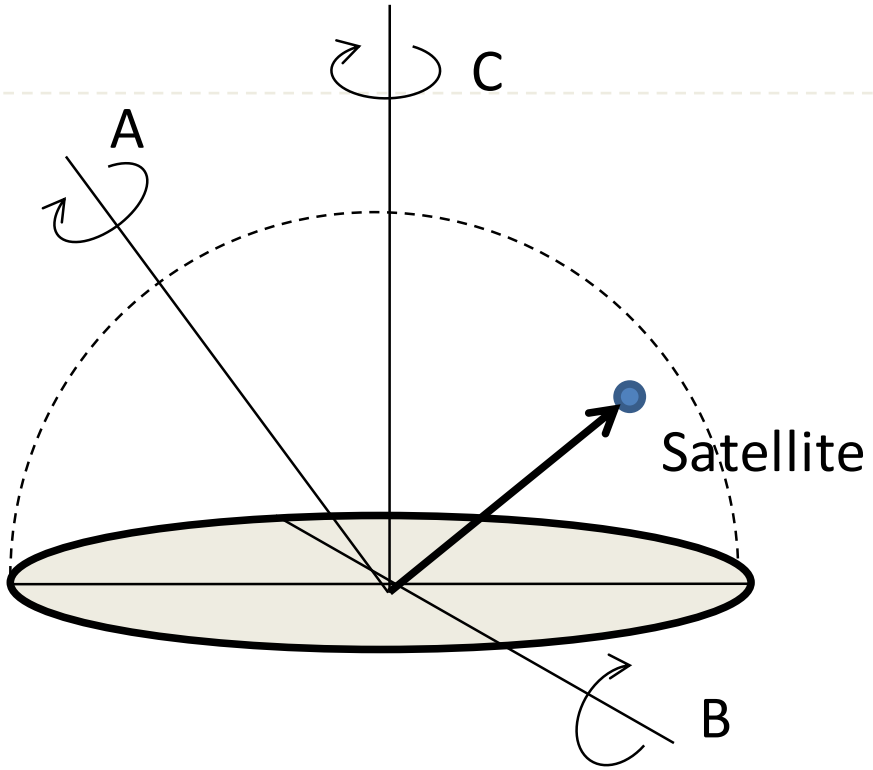
Items	values
Aperture diameter	0.2 m
Max. angular velocity	5 deg/s
Min. operation angle	0.5 asec
Field-of-view	0.5 deg
Weight	150kg
Height	1.1m

三軸駆動方式の原理

Principle of Tiaxial drive

- B軸とC軸を調整してA軸を衛星の軌道面に垂直とすることで、A軸の回転のみで衛星を追尾可能

  Satellite tracking is carried out with the rotation of A-axis only, which is set to be perpendicular to the orbit plane of a satellite by B-axis and C-axis.

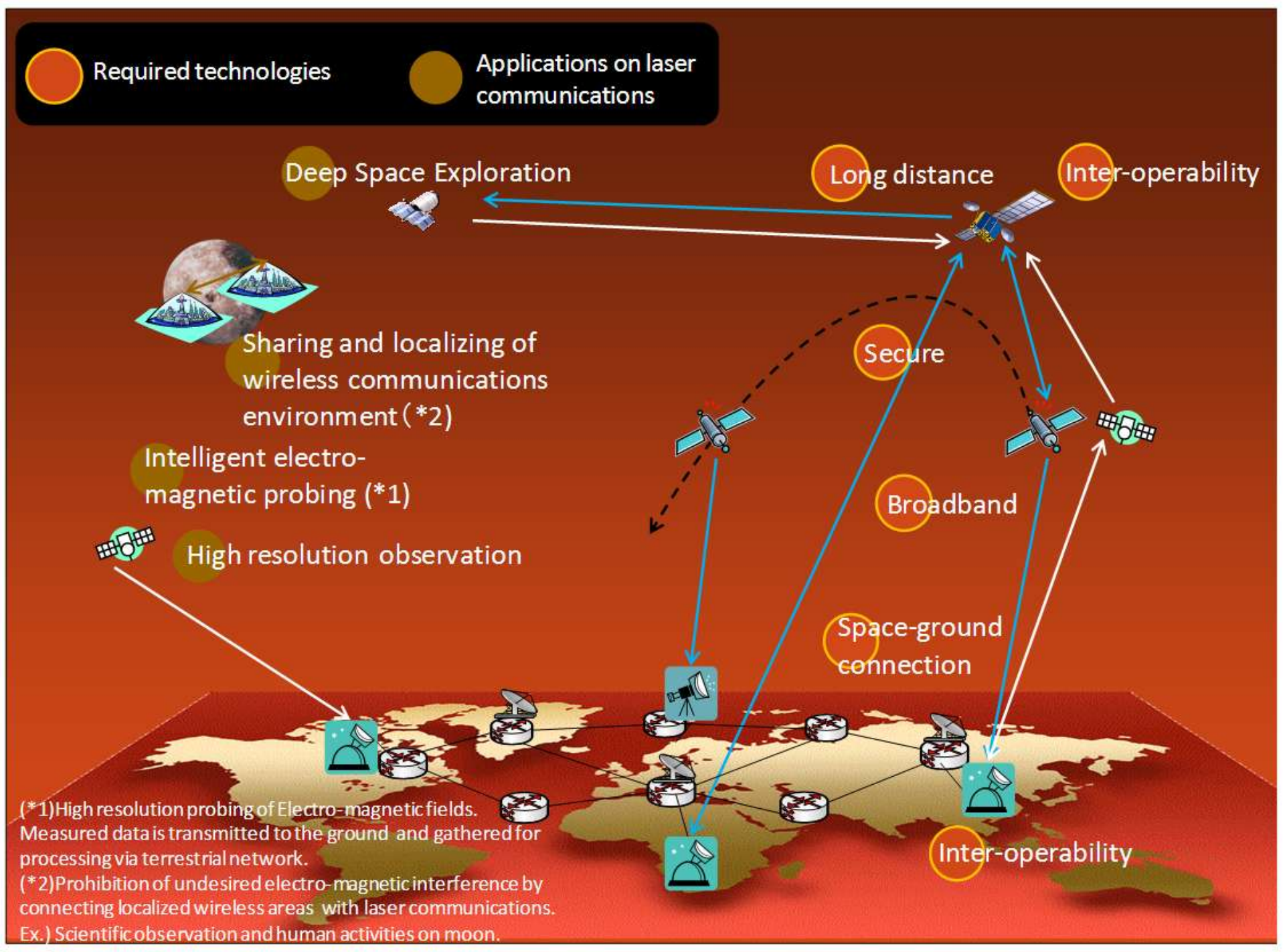


宇宙光通信の利用と地上ネットワークとの接続

Applications of Space laser communications connected with terrestrial network

- 宇宙と地上とを結ぶ光通信の実現には、天候の影響の回避が重要です。このため現在は、複数の地上局を異なる場所に配置するサイトダイバーシティに着目しています。この移動設置できる望遠鏡と地上ネットワークの利用により、宇宙と地上との光による接続を目指しています。

  The effect of the weather should be avoided for space-ground laser communications. We focus on the site diversity using multiple ground stations, and aim at space-ground connection by this transportable telescope with the terrestrial network.


Required technologies
Applications on laser communications
Deep Space Exploration
Long distance
Inter-operability
Sharing and localizing of wireless communications environment (*2)
Secure
Intelligent electro-magnetic probing (*1)
Broadband
High resolution observation
Space-ground connection
Inter-operability
(*1)High resolution probing of Electro-magnetic fields. Measured data is transmitted to the ground and gathered for processing via terrestrial network.
(*2)Prohibition of undesired electro-magnetic interference by connecting localized wireless areas with laser communications.
Ex.) Scientific observation and human activities on moon.