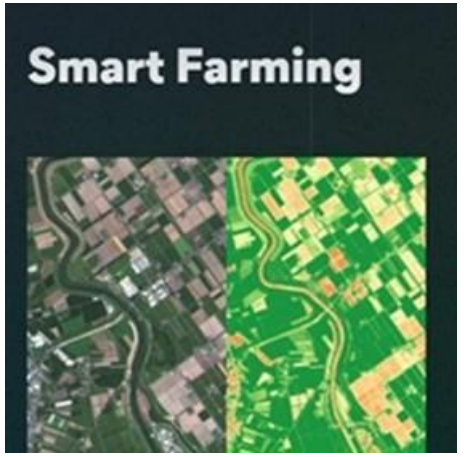
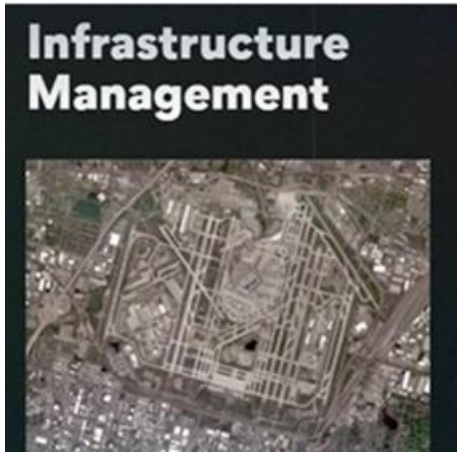
Axelspace: Space within Your Reach





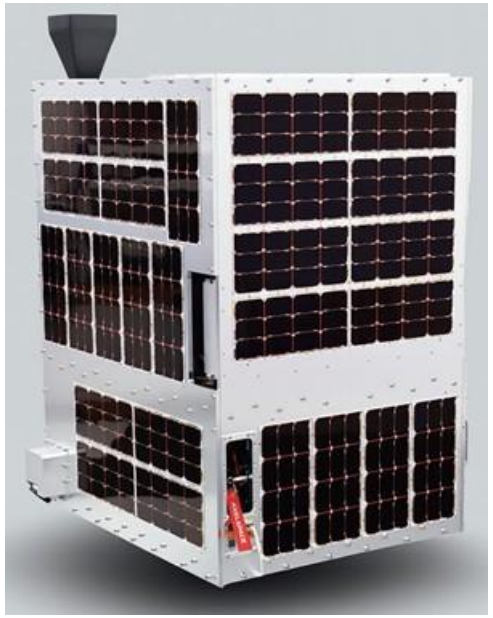
- Established in 2008
- Developed and operated 11 microsatellites in orbit
- Approximately 200 professionals from around the world

AxelGlobe: Earth observation platform

agriculture, news reporting, disaster and environmental monitoring, by offering satellite-acquired data

AxelLiner: one-stop service for microsatellite projects

customers to actualize their in-orbit demonstration and satellite-based services



Akihiko KUZE

DSc; Earth and Planetary Science, The University of Tokyo.

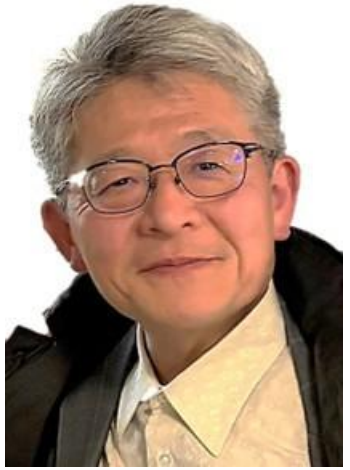
1988-2002, Space systems division, NEC Corporation

1992-1993, Harvard-Smithsonian Center for Astrophysics

2002-, GOSAT project team, JAXA 2019-, GOSAT-2 project manager JAXA

2025-, CEO, GORadS, Inc.

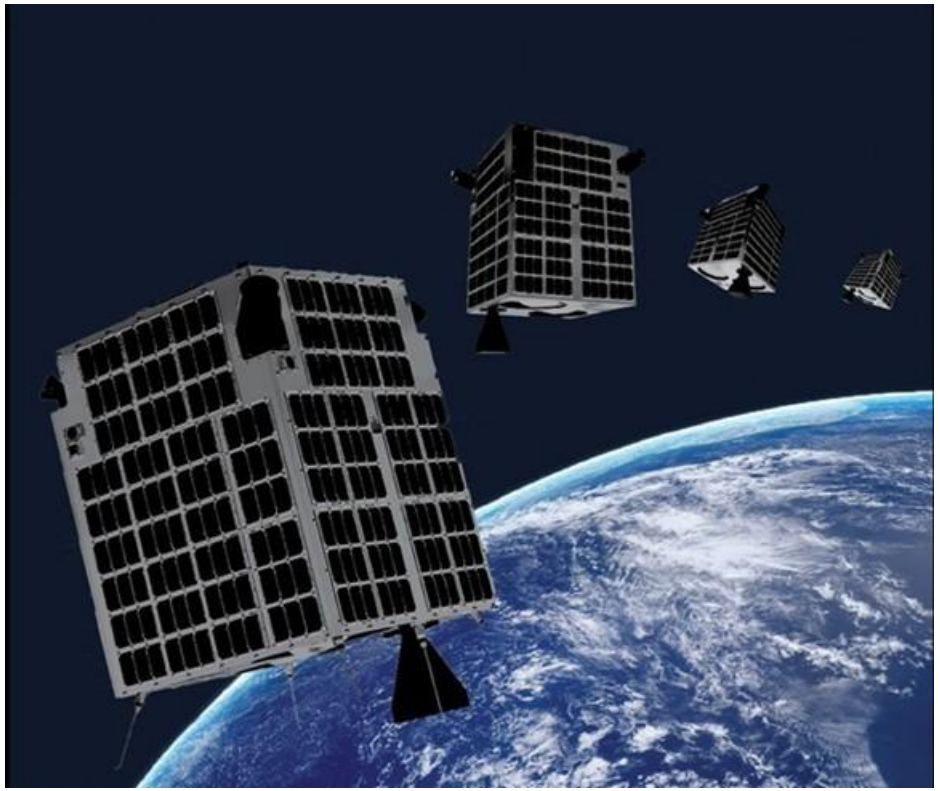
Lead Scientist, Axelspace



Over 30 years experience in Air Quality and Greenhouse Gases observation from space and upper sky

- Development of onboard instruments (Fourier-Transform Spectrometer with 10,000 spectra channels)
- Calibration activities (onboard, cross-satellite calibrations, and international field campaigns)
- Mission operations (GOSAT has been operating for 17 years)
- Data products and scientific analysis (retrieve CO_2 and methane from measured spectral data)

<Concept> 1000 spectra-channel camera on Constellation
Monitoring urban Air Quality from space



- Frequent by Constellation flight
- High spatial resolution to identify the emission sources by focusing the urban area; facility and major road) by imaging spectrometer technology
- 1000 spectral channels to monitor atmospheric constituents

  Air Quality

  Nitrogen dioxide (NO_2), Urban Ozone (O_3)

  Aerosol (small particles in urban air)

  Greenhouse Gases

  Carbon dioxide (CO_2), Methane (CH_4)

  Solar-induced chlorophyll fluorescence (SIF) (CO_2 uptake)

Why atmospheric nitrogen dioxide (NO_2) from space ?

GHG: Anthropogenic CO_2 emission proxy

Air Quality: Index of Acid rain, correlation with PM2.5, which cannot be measured remotely

Sources:

fossil fuel combustion, biomass burning, soils, oxidization of ammonia (NH_3), and lighting

In urban areas:

primary from high-temperature fossil fuel combustion processes

burdens of long-lived CO_2 and short-lived NO_2 are correlated

Co-located short-lived NO_2 show pinpoint emission source locations and depict emission plumes