

Quasi-Zenith Satellite System



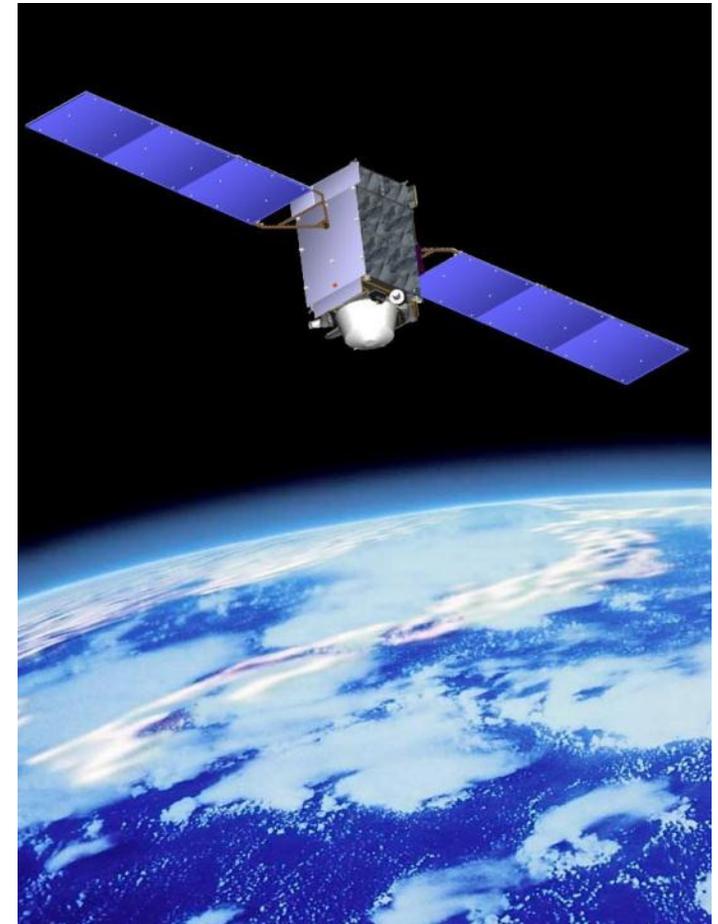
Office of National Space Policy,
Cabinet Office, Government of Japan



QZSS Overview

Quasi-Zenith Satellite System

- **Functional Capability:**
 - GNSS Complementary
 - GNSS Augmentation
 - Messaging Service
- **Coverage:** Asia and Pacific region
- **Signals:**
 - L1C/A, L1C, L2C and L5
 - L1S (L1-SAIF) on 1575.42 MHz
 - L6 (LEX) on 1278.75MHz
- **First QZSS satellite “MICHIBIKI”**
- **Four satellites constellation shall be established and the service will start in 2018.**



QZSS Functional Capability 1

GPS Complementary

QZSS improves positioning availability time

Navigation signals L1-C/A, L1C, L2C, and L5 sent from high elevation will improve the time percentage of positioning availability from 90 % (GPS only) to 99.8 % * (GPS + QZSS.)

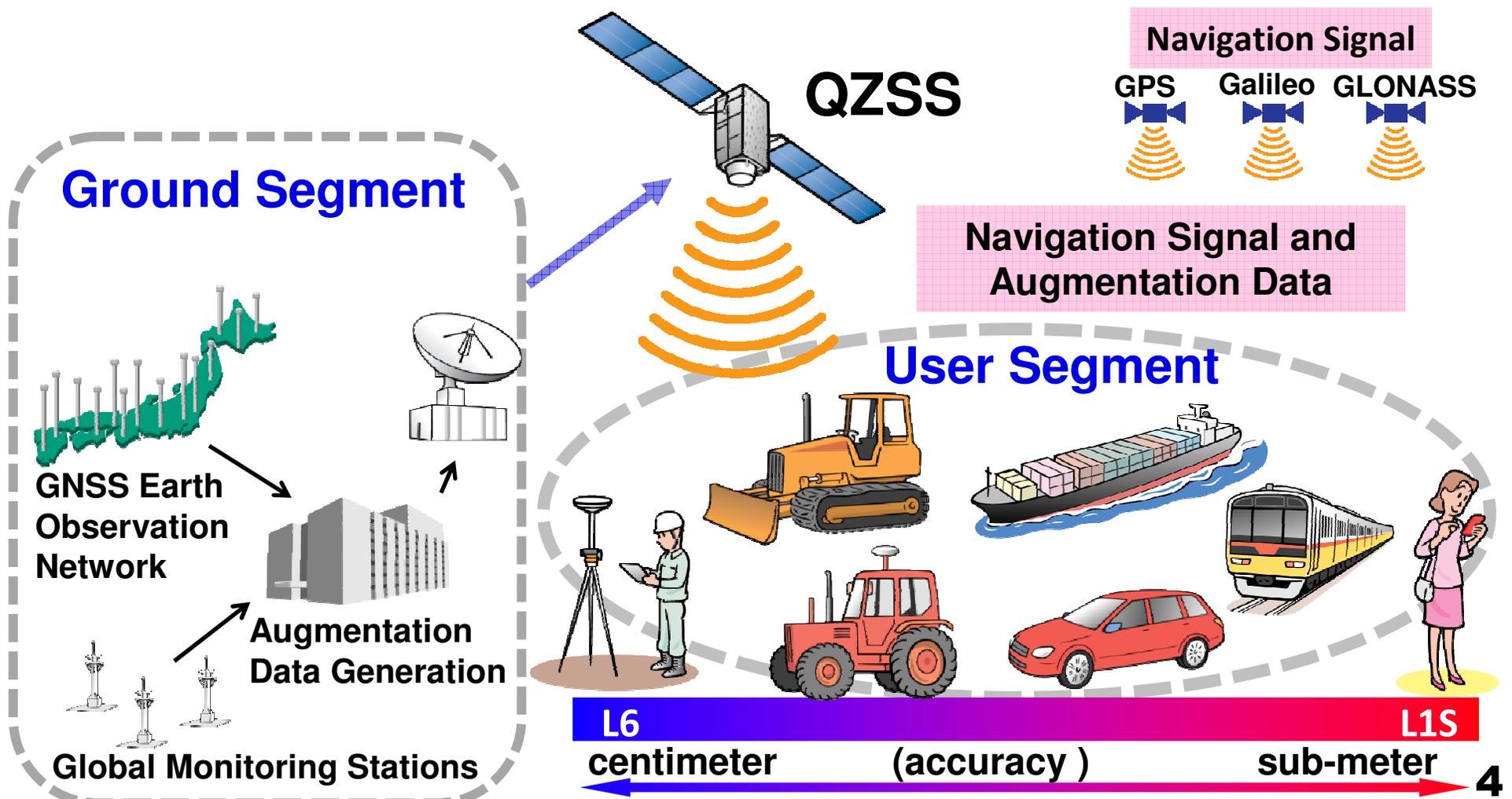
* The time percentage that the position dilution of precision (PDOP) is less than 6 when a satellite whose elevation angle is 20 degrees or over is used for positioning calculation.

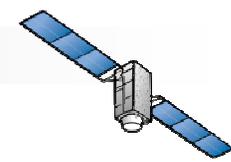


QZSS Functional Capability 2

GPS Augmentation

QZSS improves **positioning accuracy and reliability**

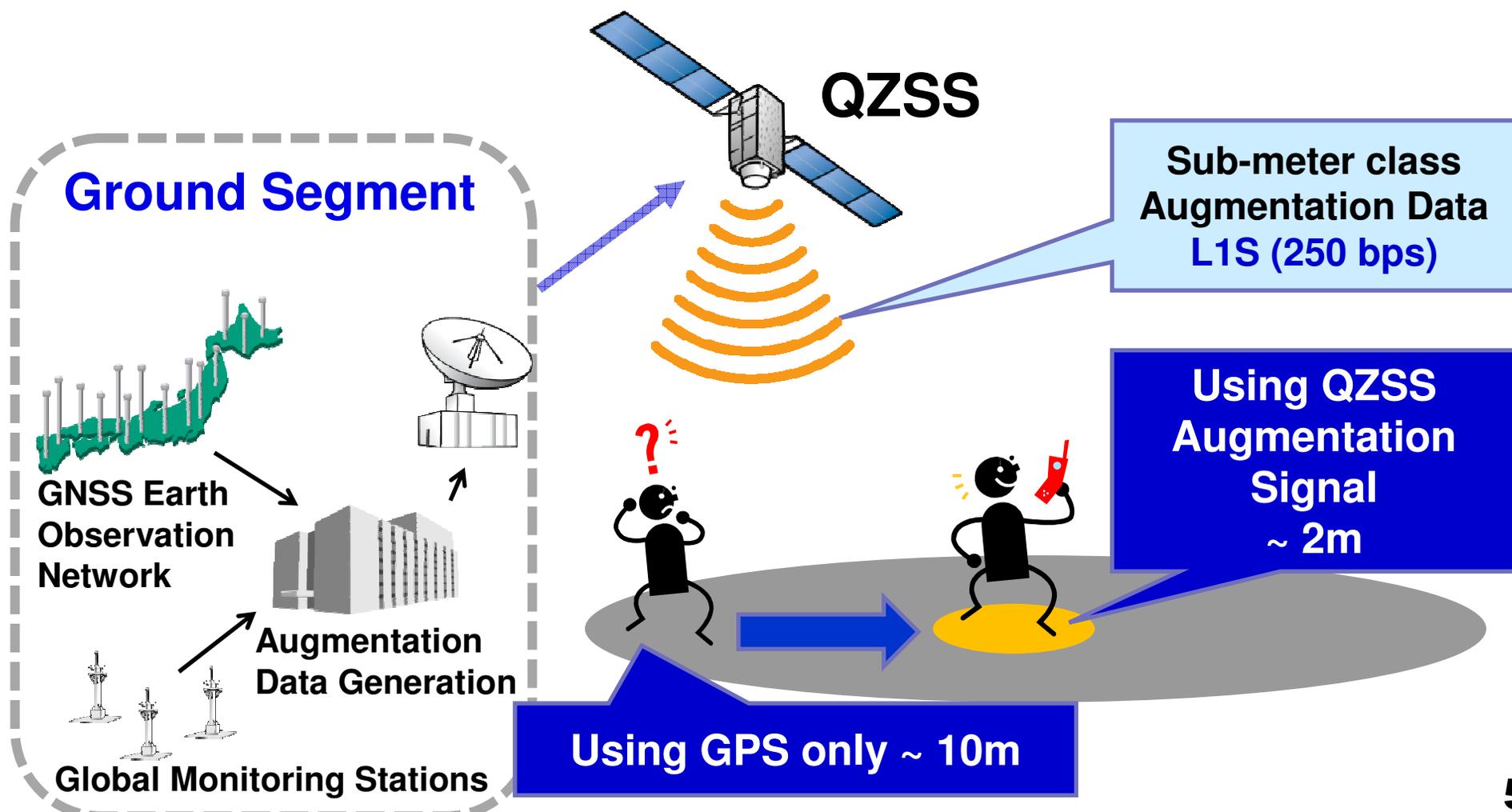


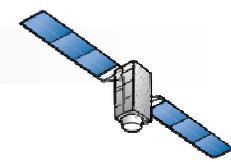


QZSS Functional Capability 2

GPS Augmentation

Sub-meter Class Augmentation

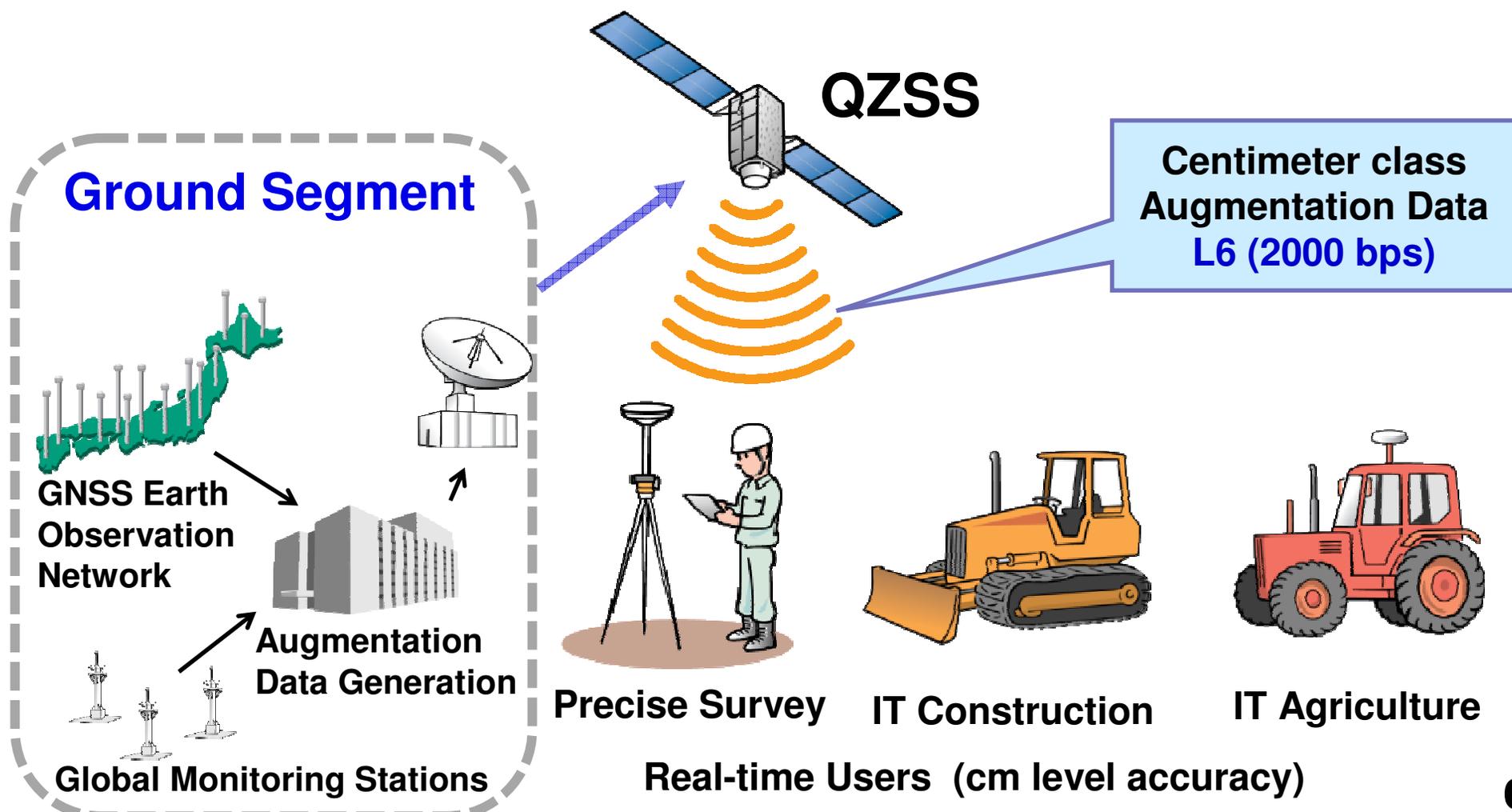


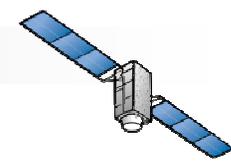


QZSS Functional Capability 2

GPS Augmentation

Centimeter Class Augmentation



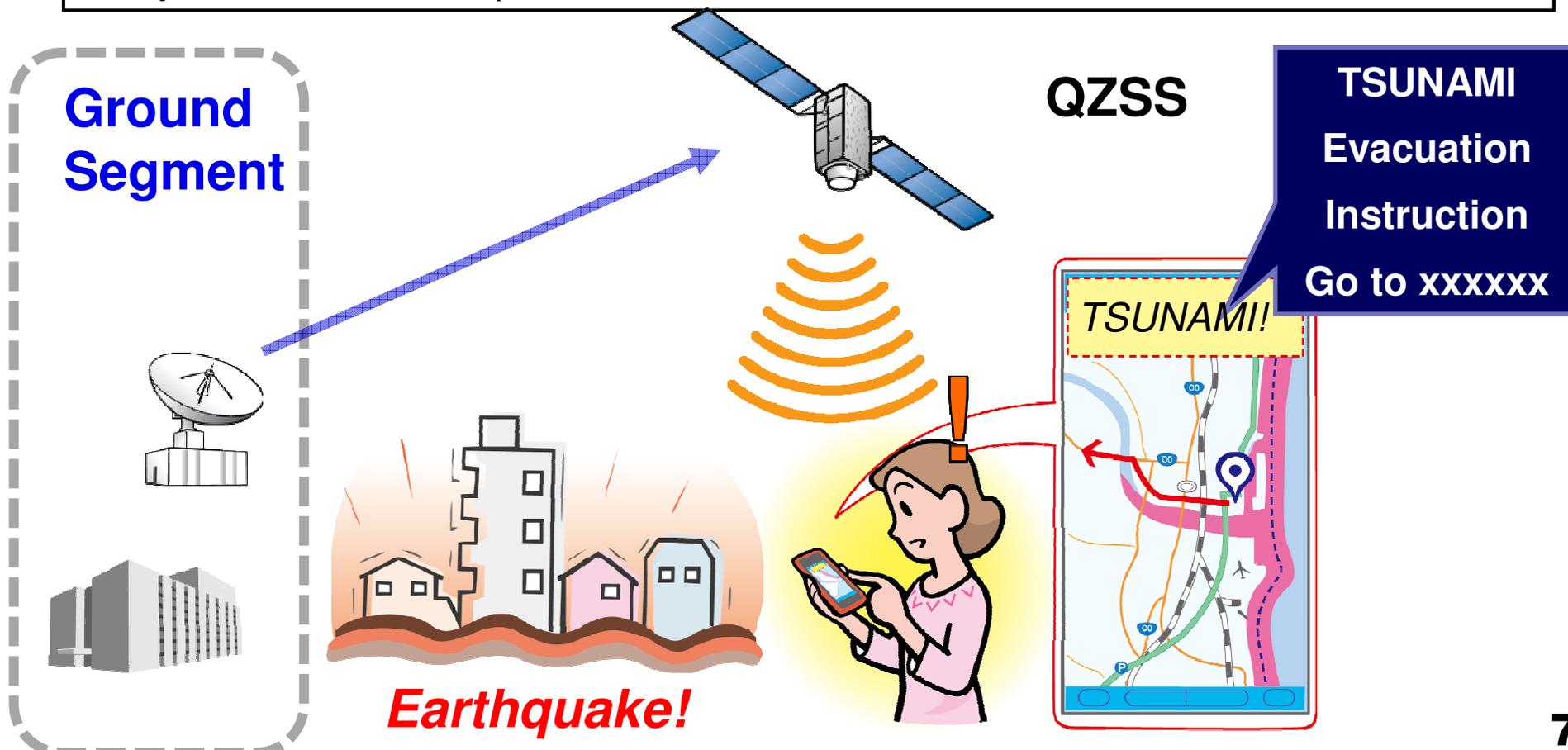


QZSS Functional Capability 3

Messaging Service

QZSS can send short messages

- QZSS can send short messages such as emergency warnings simultaneously to everyone with a mobile phone.





Basic policy on the implementation of the operational QZSS project

Cabinet Decision on September 30, 2011

- **GOJ has decided to accelerate the deployment of the operational QZSS as expeditiously as possible.**
- **Four satellites constellation shall be established by the late 2010s.**
- **In the future, seven satellites constellation shall be completed to enable sustainable positioning.**
- **The Cabinet Office shall develop, deploy and operate the operational QZSS, based on the achievement of the first QZSS satellite MICHIBIKI, and shall submit a budget request to cover relevant cost.**
- **Legal amendments shall be made in order for the Cabinet Office to fulfill such a role in time for budget implementation.**



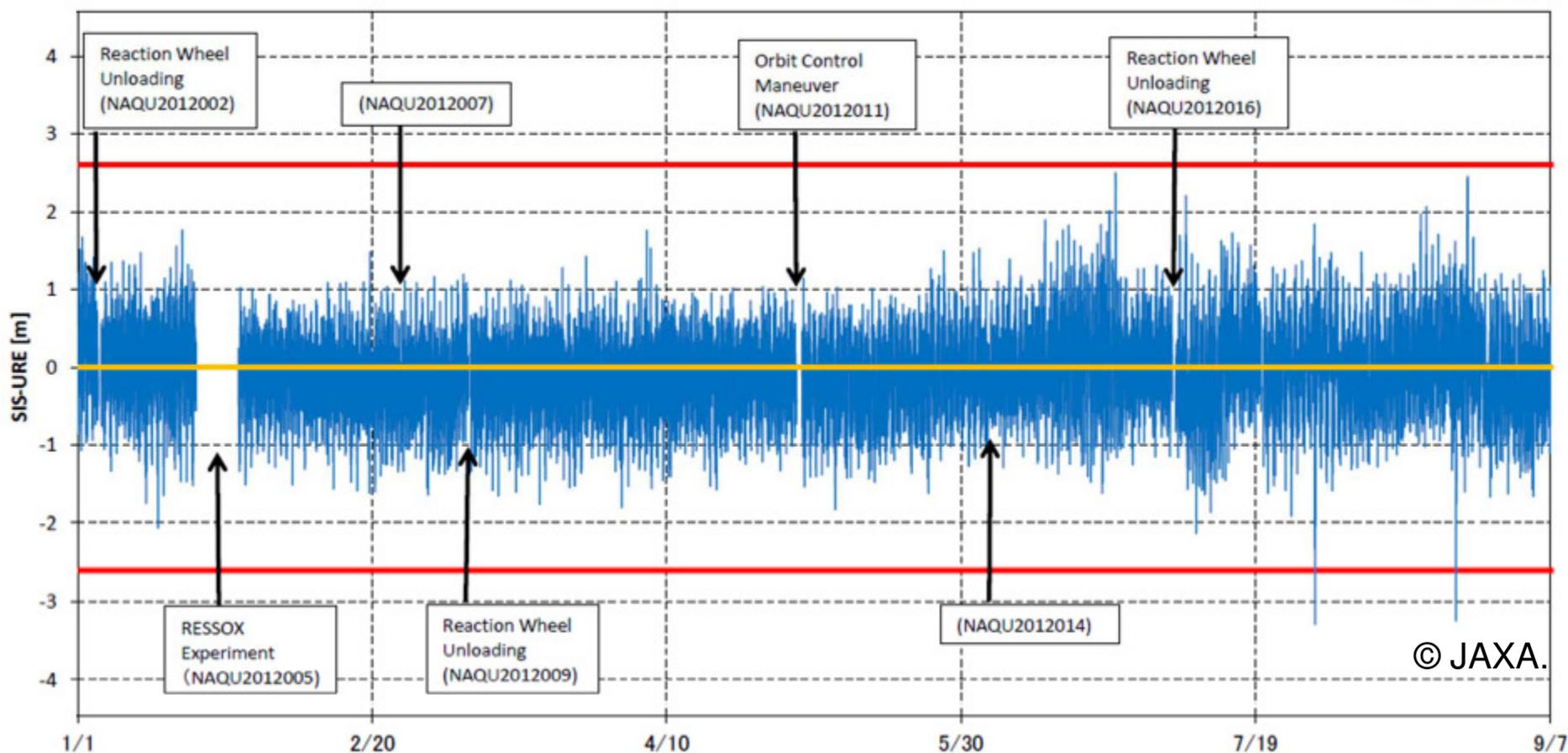
QZS-1 MICHIBIKI Operation Status Up Date

Accuracy : Signal-in-space User Range Error (SIS-URE)

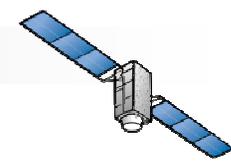
MICHIBIKI SIS-URE meets its specification, within +/- 2.6m (95%).

Its SIS-URE(RMS) is about 40cm & less than that of GPS's target, about 90cm*.

(*refer to GPS Program Update to CGSIC 2011)



SIS-URE (2012/1/1 ~ 2012/9/7)



Master Plan of QZSS



- **The Cabinet Office shall develop, deploy and operate QZSS.**
- **Four satellites constellation shall be established and the service will start in 2018.**
- **The four satellites constellation will consist of three QZSs (IGSOs) and one GEO satellite.**
- **In the future, seven satellites constellation shall be completed to enable sustainable positioning.**