



QZSS

The Japanese Quasi-Zenith Satellite System

Program Updates and Current status

Fifth International Committee on GNSS

Torino, Italy

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QZSS outline

Quasi-Zenith Satellite System

■ *Characteristic:*

- *GPS Complementary*
- *GPS Reinforcement*
- *Short message*

■ *Coverage: East Asia and Oceania region*

■ *Six Signals:*

- *L1C/A, L1C, L2C and L5*
- *L1-SAIF on 1575.42 MHz*
- *LEX on 1278.75MHz*

■ *First satellite (MICHIBIKI):*

launched in September 2010



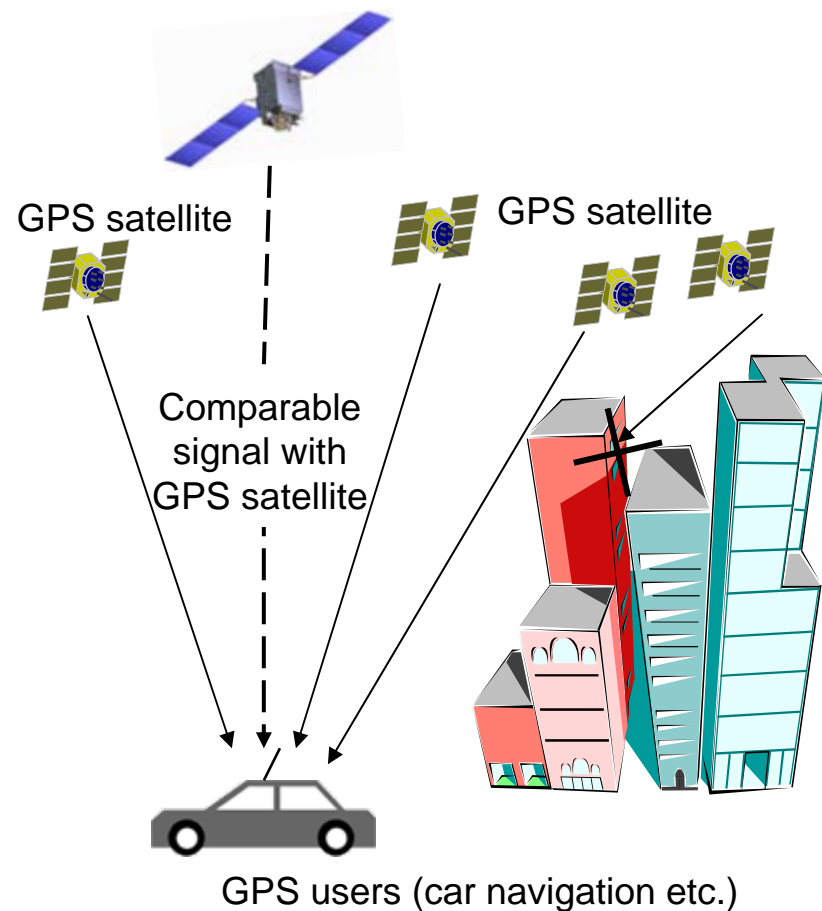
GPS Complementary

QZSS improves [positioning availability time](#)

Complementary signals sent from high elevation will improve the time percentage of positioning availability from 90 % (GPS only) to 99.8 % * (GPS + 3 QZS satellites.)

* 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.

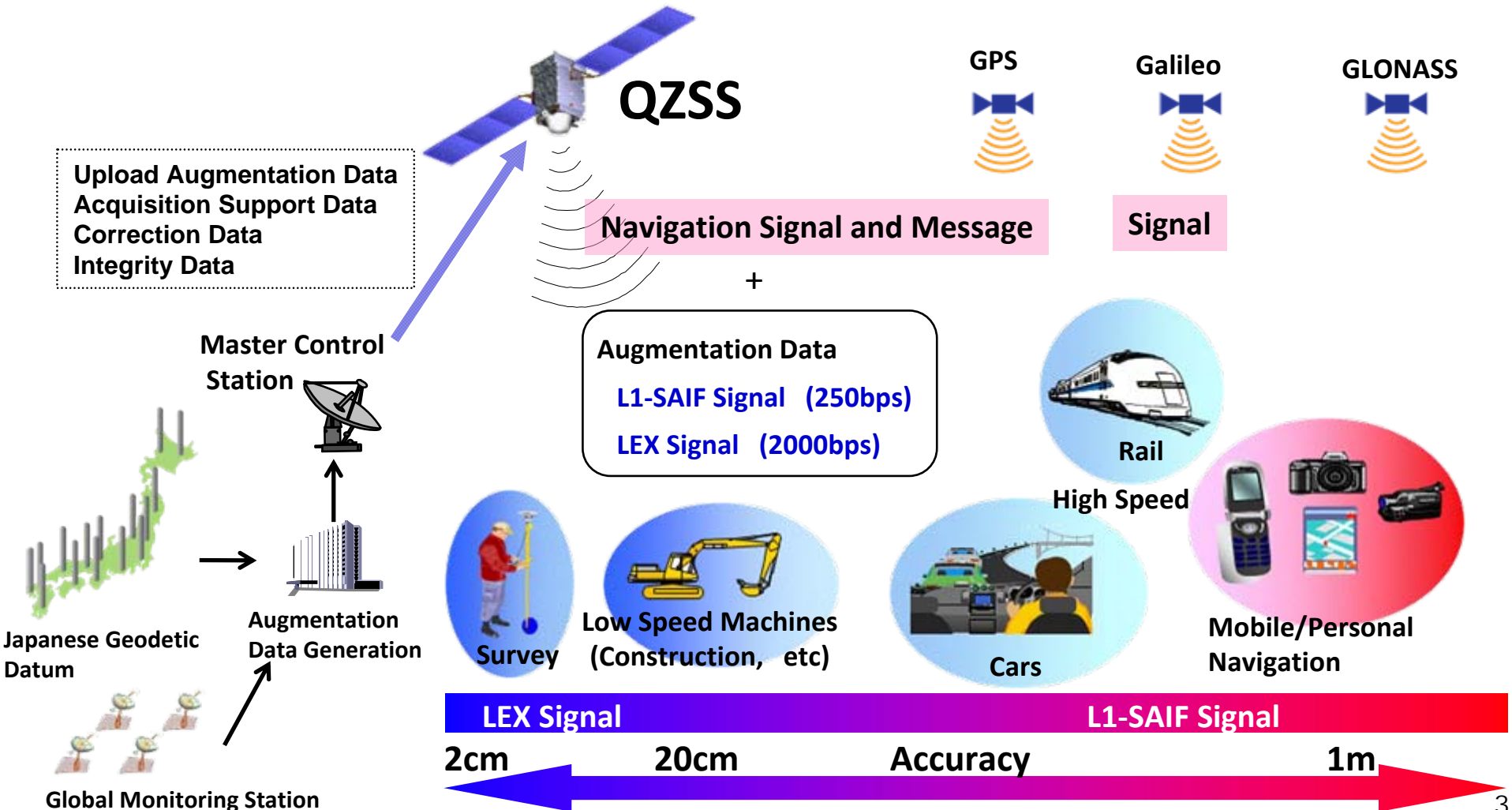
Quasi-Zenith Satellite



GPS Reinforcement

QZSS improves [positioning accuracy](#)

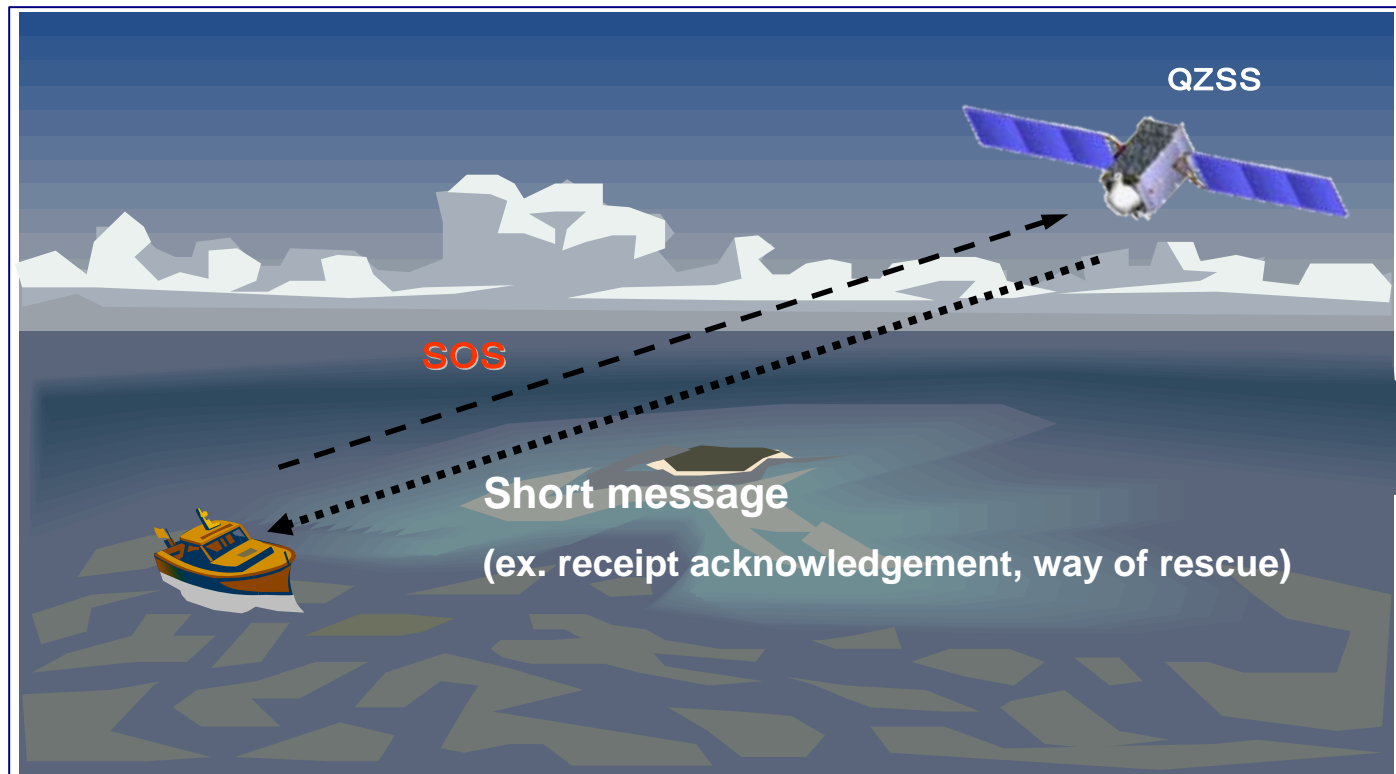
QZSS upgrades the positioning accuracy to one meter or even a centimeter level.



Short message

QZSS can [send short message](#)

QZSS enables us to add emergency information such as disaster information to positioning signals and reinforcement signals, and transmit such signals with additional information to all at once.



Back Ground Act

- May 2008 : Space Basic Law
- Jun 2009 : Basic Plan for Space Policy
- Aug 2010 : The decision of Strategic Headquarter for Space Policy on “Promotion of Space Policy for the time being”.
 - The QZSS Project Team composed of the Parliamentary Secretary of the related ministries was established.
- Sep 2010 : Budget request for the 2nd QZSS study

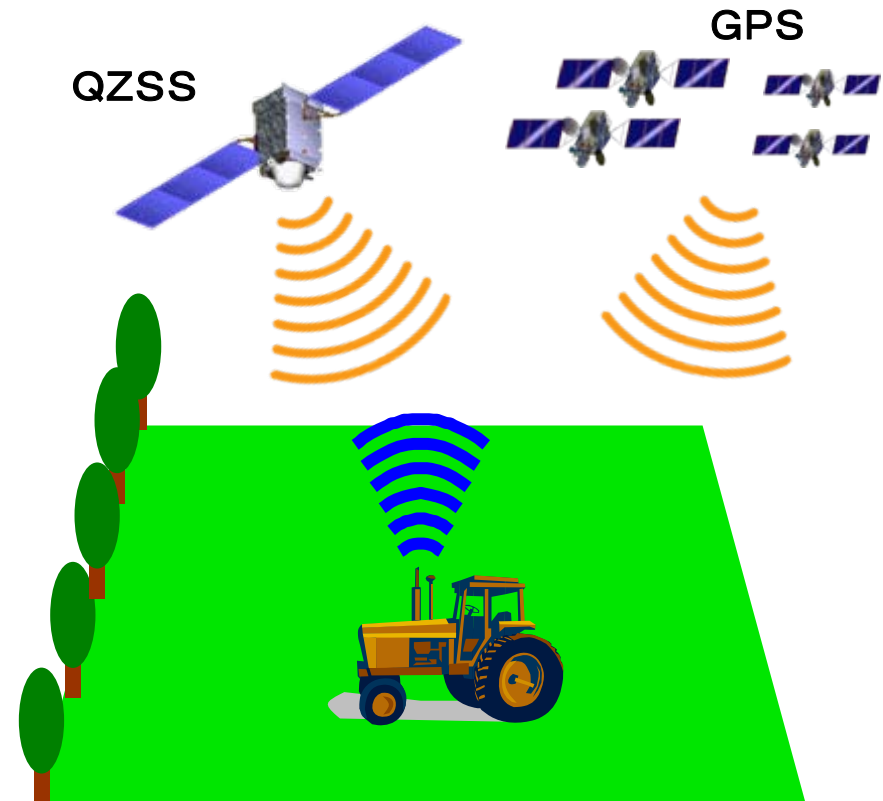
Future Plan regarding QZSS

- The QZSS Project Team is deliberating the following items and will decide on a development *policy for the second and subsequent satellites by the end of 2011.*
 - *Specific field and method of utilization in the public sector (e.g. guarantee of national security, improvement of safe and secure for the citizens and the others)*
 - *Outcome and task for their achievement*
 - *Specific field and method of utilization in the private sector (e.g. creation of new industries, cost reduction and the others)*
 - *Interoperability with GPS, Galileo and the other GNSS and cooperation in the Asia-Pacific region on QZSS etc.*
- *In the near future, working group comprised of specialists will be established under the Strategic Headquarters for Space Policy.*
- *From the end of this year, technical and utilization verification regarding the first satellite will be started.*

Application implemented by the QZSS

Precision Agriculture based on iT Automatic Driving

Using a reinforcement signal from the QZSS, accurate positioning of about +/- 10 cm (target) become possible without ground network.



Free from Ground Network

Application implemented by the QZSS

Construction based on iT Automatic Driving

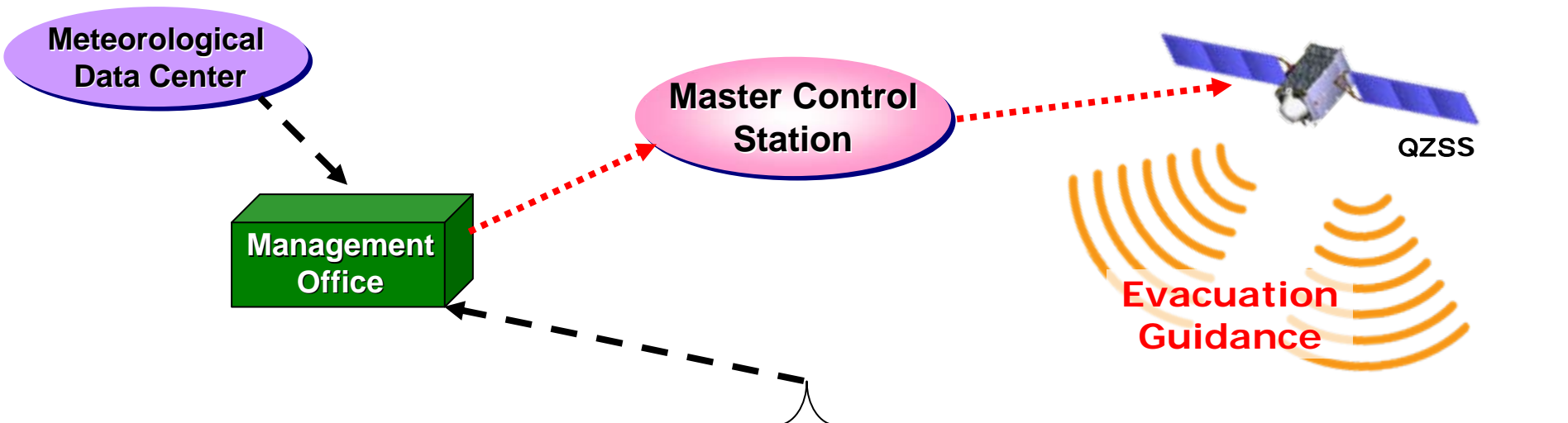
Using a reinforcement signal from the QZSS, accurate positioning of about +/- 10 cm (target) become possible without ground network.



Free from Ground Network

Application implemented by the QZSS Emergency Evacuation

Using L1-SAIF from the QZSS, effective evacuation guidance become possible.



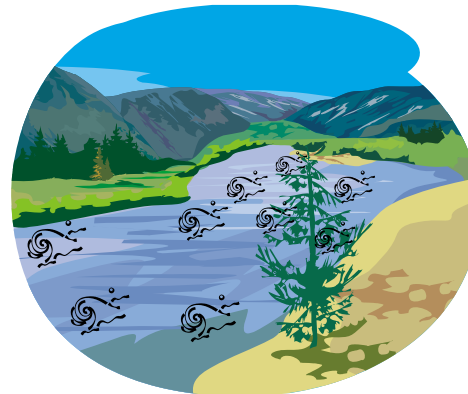
Localized
Torrential Rain



Torrential Rain



Flood



Volcanic Eruption

