

# Outline of QZSS Project in Japan

September 4, 2007

Ministry of Education, Culture, Sports,  
Science and Technology (MEXT) in JAPAN

# *Recent progress of the QZSS*

## ➤ **March, 2006**

✓ Committee on the promotion of GIS and Positioning Information has issued the Basic Policy on the Promotion of the QZSS project.

● As the 1st stage, technological verifications by R&D ministries and demonstrations by the private sector and user ministries will be carried out by using the first QZSS satellite.

● The QZSS plan will basically proceed to the 2nd stage on the government-private cooperation, after the evaluation of the results of technological verifications and demonstrations of the 1st stage.

## ➤ **November, 2006**

✓ The development of the first QZSS satellite has been started after the evaluation and approval by the Space Activities Commission.

## ➤ **February, 2007**

✓ The private sector has established the Satellite Positioning Research and Application Center (SPAC) in aims to promote demonstration and utilization of the satellite based positioning, etc.

## ➤ **June, 2007**

✓ JAXA released the revised draft of Interface Specifications for QZSS and invited public comments.

## ➤ **August, 2007**

✓ The development of the first QZSS satellite proceeded to the critical design phase after the basic design phase.

## ➤ **August, 2007**

✓ The Fundamental Act of Promotion for Utilization of Geographical Spatial Information entered into force.

# Coordination and Cooperation Framework on GIS and Positioning Information in Government of Japan

## ○Committee on the Promotion of GIS and Positioning Information

**Chairman : Assistant Chief Cabinet Secretary**

**Vice-Chairmen : Director Generals of Cabinet Secretariat, MIC, MEXT, METI, MLIT**

**Member : Director General of other ministries**

## ○Subcommittee on the Promotion of GIS and Positioning Information

**Chairman : Councilor, Cabinet Secretary**

**Vice-Chairmen : Directors of Cabinet Secretariat, MIC, MEXT, METI, MLIT**

**Member : Director of other ministries**

## OWG on GIS

**Chairman : Councilor, Cabinet Secretary**

**Vice-Chairman : Directors of MLIT**

**Member : Director of other ministries**

## OWG on Satellite based Positioning

**Chairman : Councilor, Cabinet Secretary**

**Vice-Chairmen : Directors of Cabinet Office,  
MIC, MEXT, METI, MLIT**

**Member : Director of other ministries**

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GIS : Geographic Information System

QZSS : Quasi Zenith Satellite System

MIC : Ministry of Internal Affairs and Communications

MEXT : Ministry of Education, Culture, Sports, Science and Technology

METI : Ministry of Economy, Trade and Industry

MLIT : Ministry of Land, Infrastructure and Transport

# *The Fundamental Act of Promotion for Utilization of Geographical Spatial Information*

## <Extract>

### **§ 9 Establishment of the basic promotion plan for utilization of geographical spatial information**

*Article 9; The Government shall establish a basic promotion plan for utilization of geographical spatial information in order to execute policies for promotion of the utilization of geographical spatial information comprehensively and strategically.*

### **§ 10 Establishment of cooperation system among relevant government organizations**

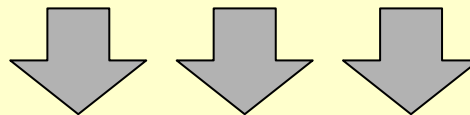
*Article 10; The Government shall execute essential policies to establish the cooperation system by relevant government organizations and the others, concerning the establishment of the basic promotion plan for utilization of geographical spatial information and the execution of policies based on this plan.*

### **§ 20 Contacts with operators of global satellite based positioning systems**

*Article 20; The Government shall execute essential policies to maintain necessary contacts with the operators of global satellite based positioning systems and the others, in order to promote the utilization of geographical spatial information by establishing the environment where reliable and stable satellite based positioning services can be effectively provided .*

### **§ 21 Promotion of R&D of satellite based positioning systems**

*Article 21; The Government shall promote R&D activities, technological verifications and demonstrations of satellite based positioning systems, and following them, execute necessary policies for encouragement of satellite based positioning applications considering their outcomes, in order to promote the utilization of geographical spatial information obtained by satellite based positioning systems.*



■ **Establishment of relevant cabinet ministers meeting (Planned in 2007)**

■ **Establishment of basic plan to promote necessary policies (Planned in 2007)**

# QZSS System Design



Item	Contents
Aspect	Boxed shape.
Mass	About 1,800kg(dry) (NAV Payload: about 320kg)
Electric Power	About 5.3kW(EOL) (NAV Payload: about 1.9kW)
Attitude control	Three-Axis attitude control. QZS attitude is controlled to ensure that antennas always point toward the center of the Earth  Yaw steering controls the solar cell arrays to optimize reception of sunlight
Frequency	NAV signals: L-band 6 signals on 4 frequencies TWSTFT: Ku-band (developed by NICT)
Lifetime	10 years
Orbit	Quasi-Zenith Orbit (current design $i:45\text{deg}$ , $e:0.099$ , $a:42,164\text{km}$ )
Launch Vehicle	H-IIA rocket

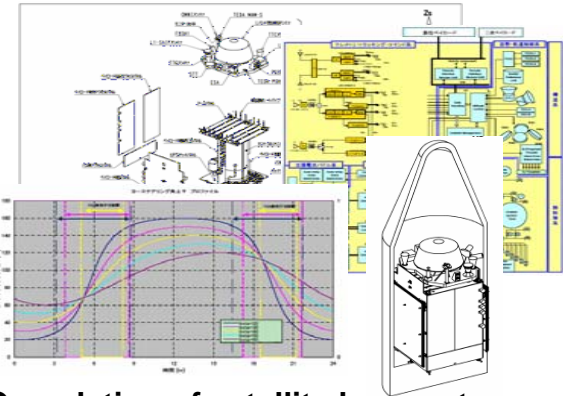
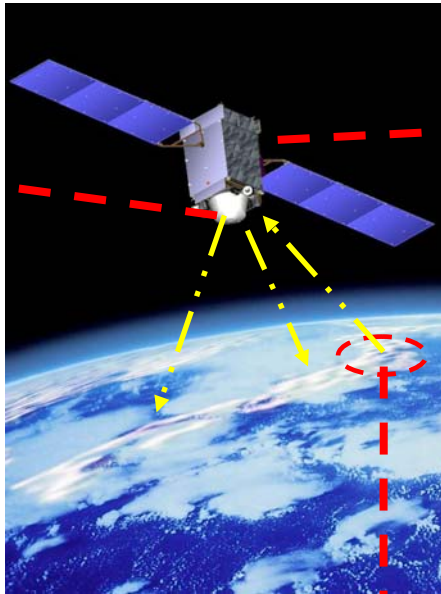
TWSTFT: two-way satellite time and frequency transfer

【Reference】

# Current development Status



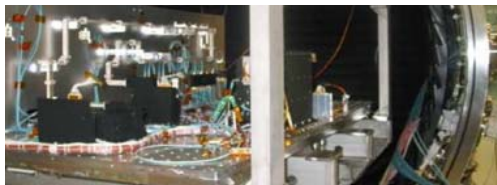
Thermal Vacuum Test of L-band Antenna Engineering Model (February 2007) 【MEXT】



Completion of satellite bus system basic design (August 2007) 【MEXT】



Development of main structure development model (Central Cylinder type) 【METI】



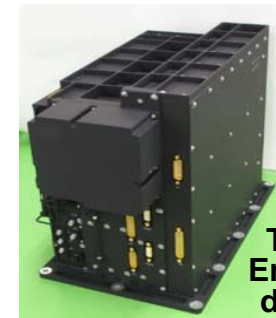
Thermal Vacuum Test of Navigation Payload Engineering Model (April 2007) 【MEXT】



Prototype system for GPS augmentation message generator 【MLIT】



Ground Antenna for TWSTFT via QZSS (NICT Koganei) 【MIC】



TWSTFT Modem Engineering Model development test (March 2006) 【MIC】