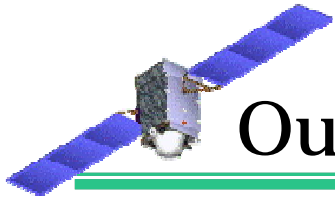


Service Status of QZSS

**Satellite Positioning Research and Application Center
PNT Application and promotion Division
Shigeru Matsuoka**

**The Asia Pacific Regional Space Agency Forum
Communication Satellite Application WG
Dec.10 2008**



Outline of QZSS(Quasi Zenith Satellite System) Project



Historical Summary

- 2001 Proposal of QZSS system framework by Japan Business Federation
- 2002 ASBC was established to perform business feasibility study
QZSS project started based on the collaboration between private sector and government as a combined mission of communications, broadcasting and navigation
- 2003 QZSS R&D commenced by four ministries

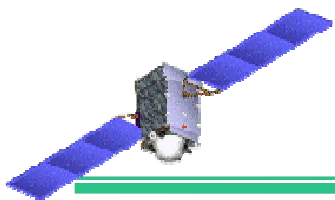
March 2006

Government Basic Policy defined to promote QZSS project step by step as a dedicated navigation satellite system.

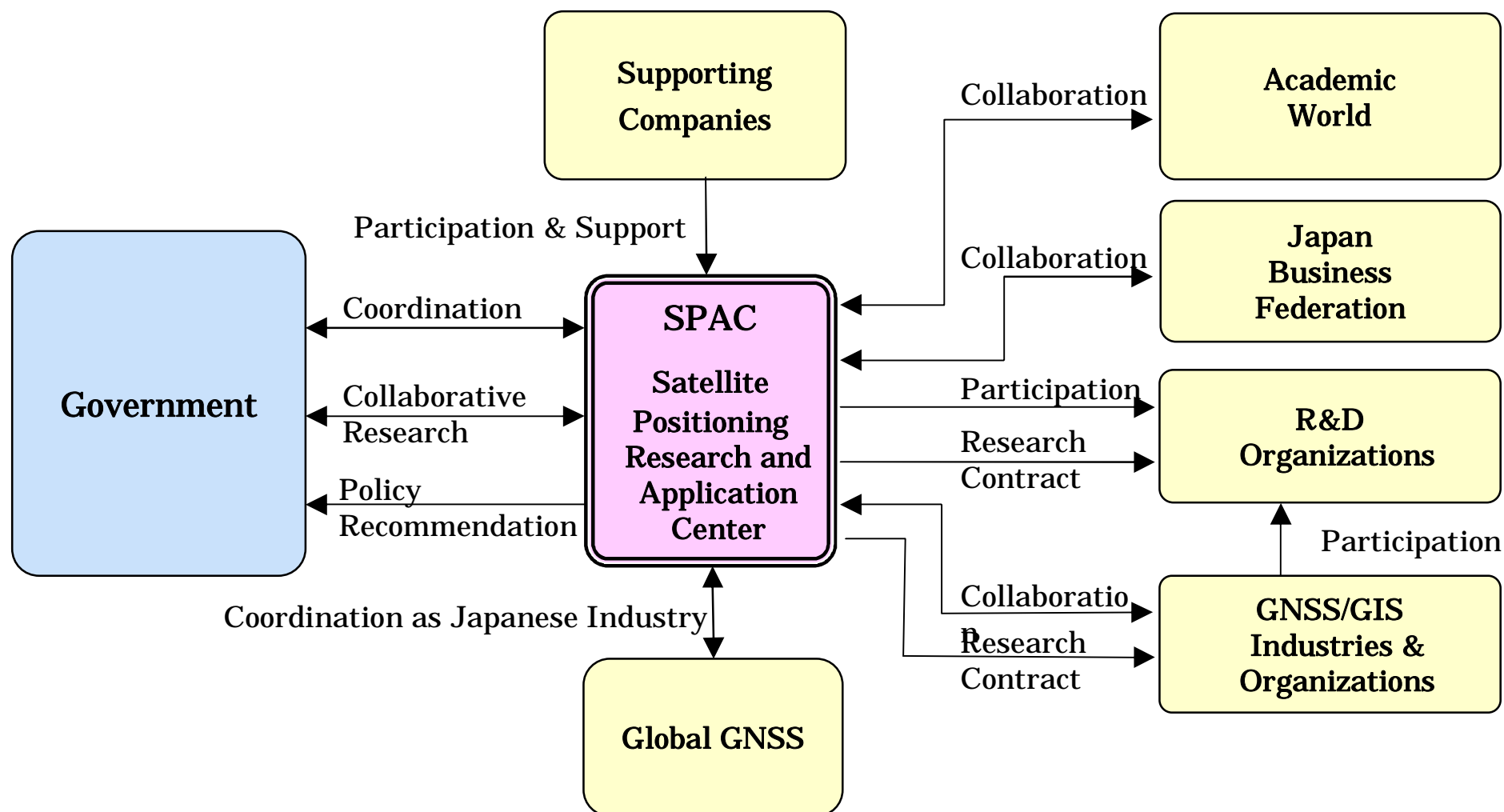
Government is responsible for the launch of QZSS project and develop and integrate the first satellite system.

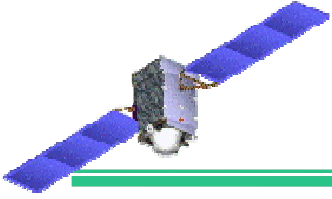
The private sector organization needs to be reorganized for new responsibility. ASBC is to be closed at the end of March 2007.

New public-interest foundation “Satellite Positioning Research and Application Center (SPAC)” was established on 5 February 2007 by the four Ministry approval.



Relationship of SPAC and Outsides





SPAC – Government Relationship



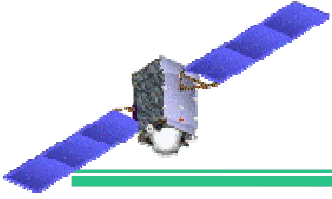
QZSS project is promoted by the collaboration between government and SPAC.

Government :

- Research & development and integration of first satellite system, and in-orbit demonstration of QZSS technology and R&D.
- Cabinet General Office Coordinate Four-Ministries associated with QZSS and government-industry relationship.
 - Ministry of Education, Culture, Sports, Science and Technology (MEXT)
 - Ministry of Internal Affairs and Communications (MIC)
 - Ministry of Economy, Trade and Industry (METI)
 - Ministry of Land, Infrastructure and Transport (MLIT)

SPAC : Propagate NSDI usage by promoting QZSS

- Research and business planning of commercial service by QZSS
- In-orbit demonstration of QZSS application technology in cooperation with government



Activity plan of SPAC

1. Facilitate the utilization of satellite positioning by the private sector

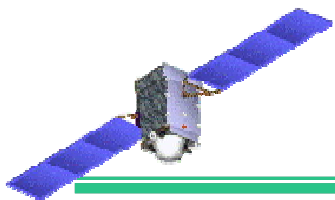
- Promote application/utilization
- Study/Research to improve reliability/stability
- Study/Research regarding the utilization of geospatial information
- Promote demonstrations of applicability

2. Promote the creation of reinforced information distribution business utilizing the Quasi-Zenith Satellite System

- Promote business creation
- Overseas linkages
- Technical standardization

3. Coordination among economic/industrial sectors related to satellite positioning

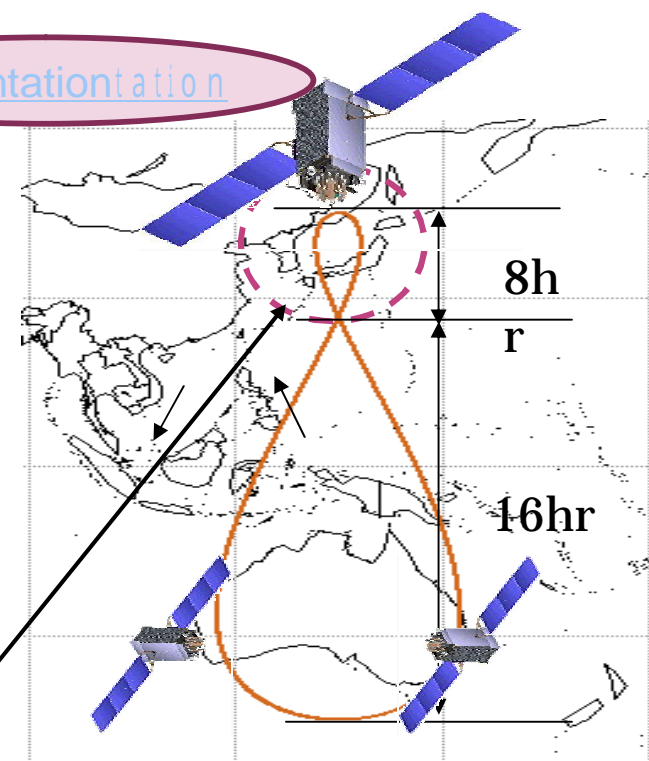
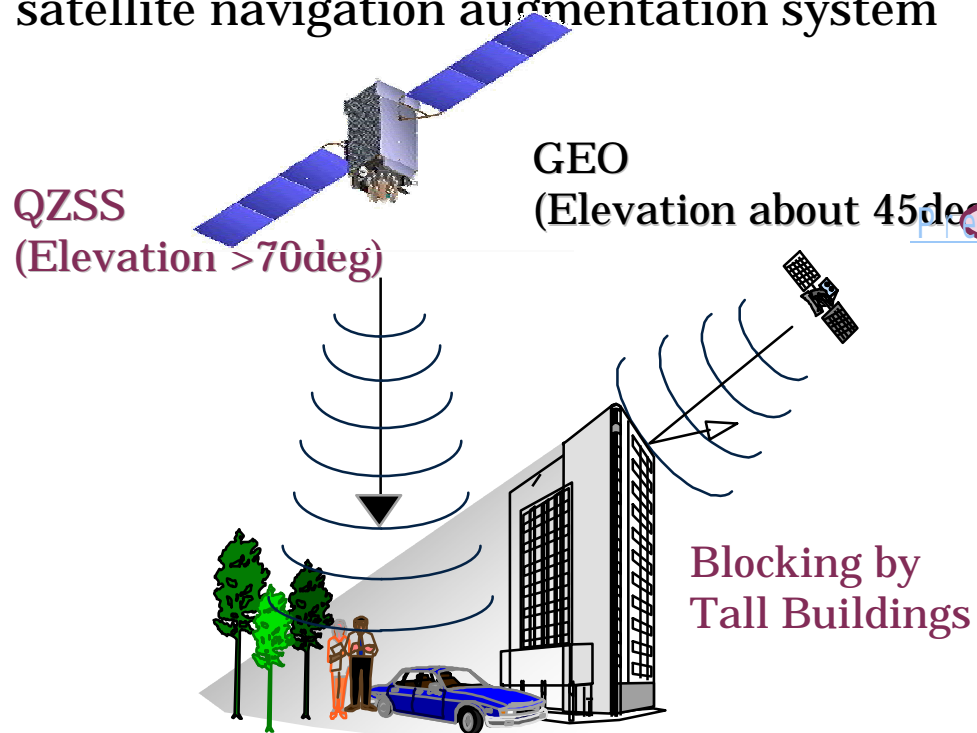
- Diffusion and education
- Coordination among economic/industrial sectors
- Linkages with various organizations



Features of QZSS

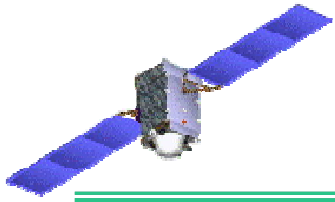
Satellite system suitable for regional satellite navigation augmentation system

QZSS is a HEO satellite system and the earth trace of orbit is as below and consists of three satellite to provide 24 hours service

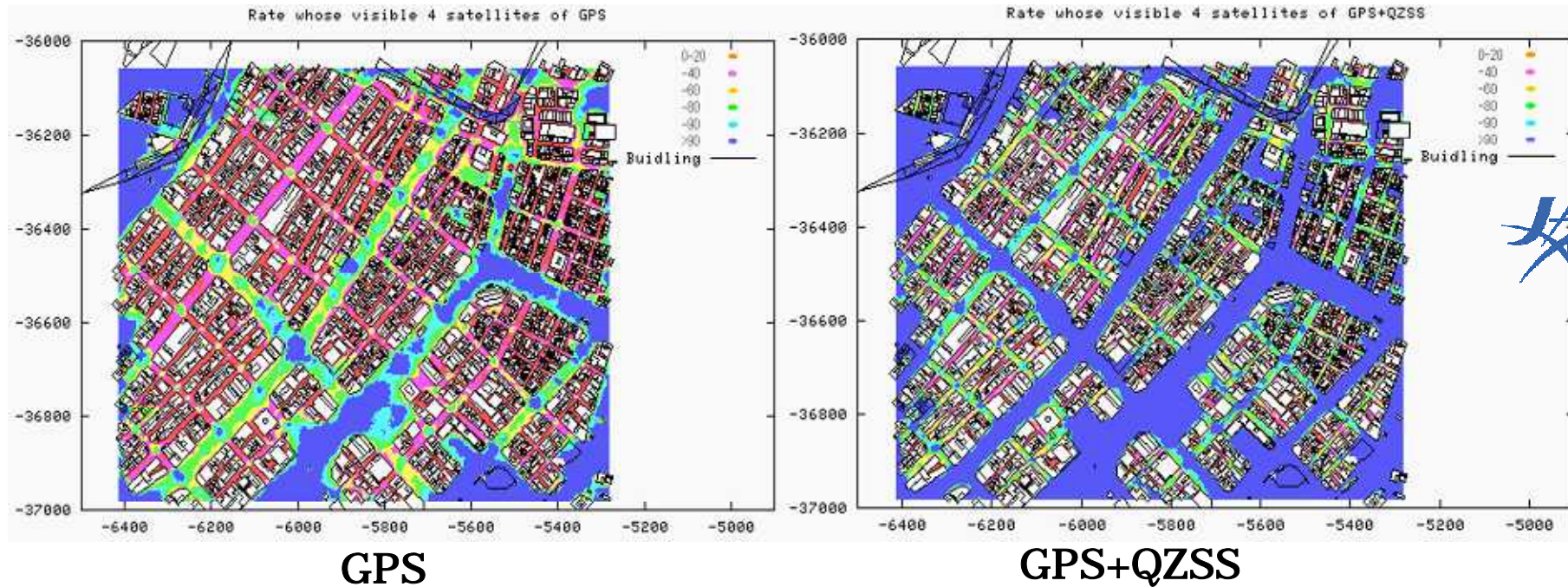


Commercial Service Area

Provide commercial augmentation service continuously over Japan by handover at every 8 hours

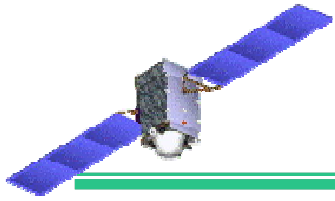


Improvement of Availability



0-20, 20-40, 40-60, 60-80, 80-90 90-100 %





QZSS(Quasi Zenith Satellite System) ?

For reliability security

Monitor a pinpointing signal by oneself and watch it

Transmit direct abnormality to a user by oneself

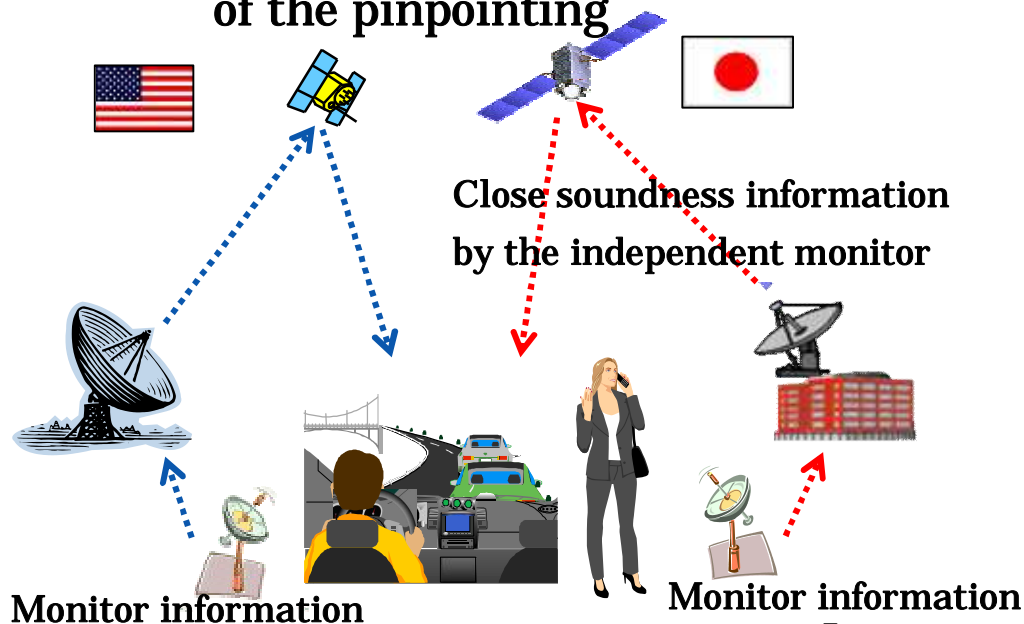
For stability security

Increase with the satellite number of air space

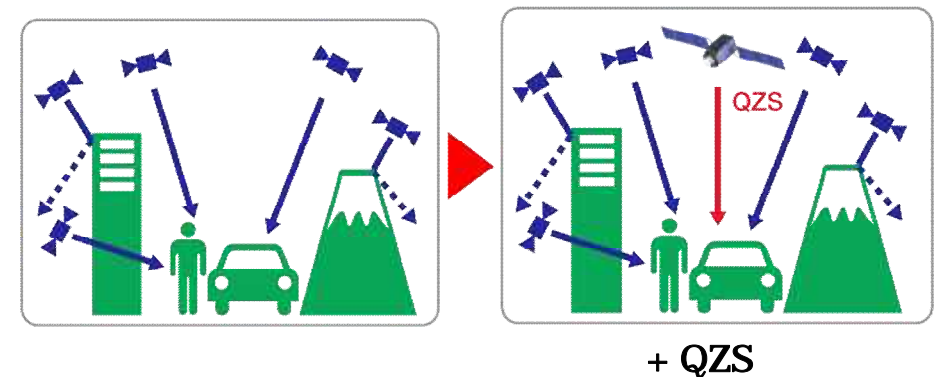
Arrange a known satellite in the vicinity of the zenith

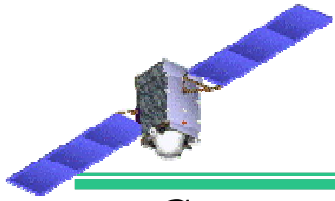
QZSS is most suitable

Reliability improvement of the pinpointing



Improvement of Availability





QZSS Development Plan

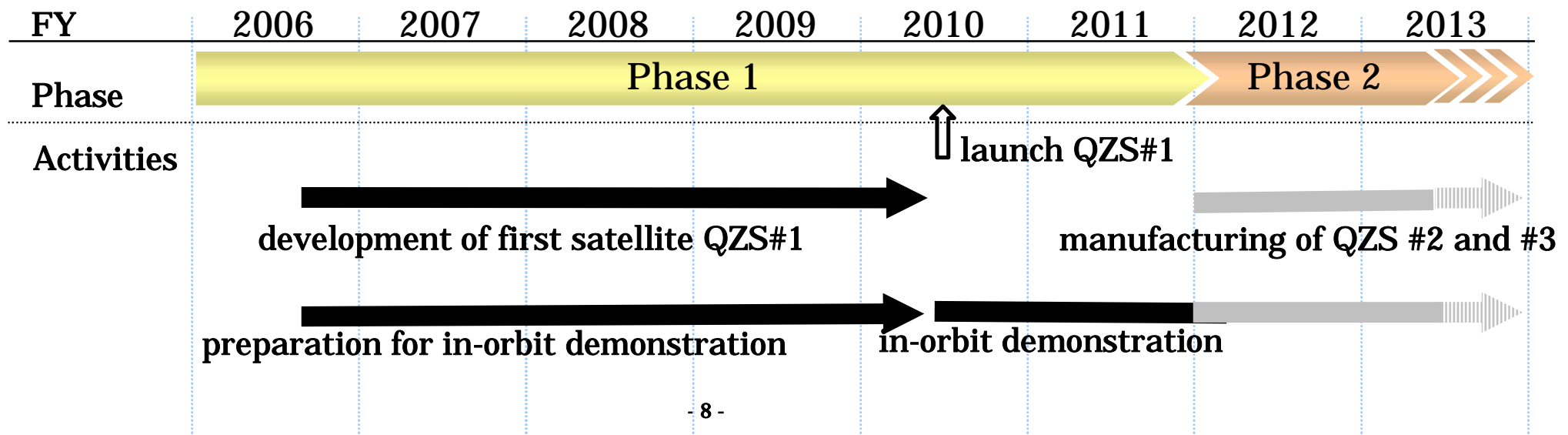
- Government is responsible for the launch of QZSS project
- Project is classified into two phases. Current plan by government is;

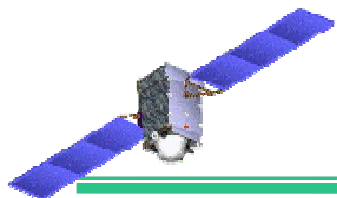
Phase 1

- Government shall perform the research and development of first satellite.
- Launch of first satellite is planned in FY2010
- In-orbit demonstration of QZSS technology and application technology is performed by both government and private sector

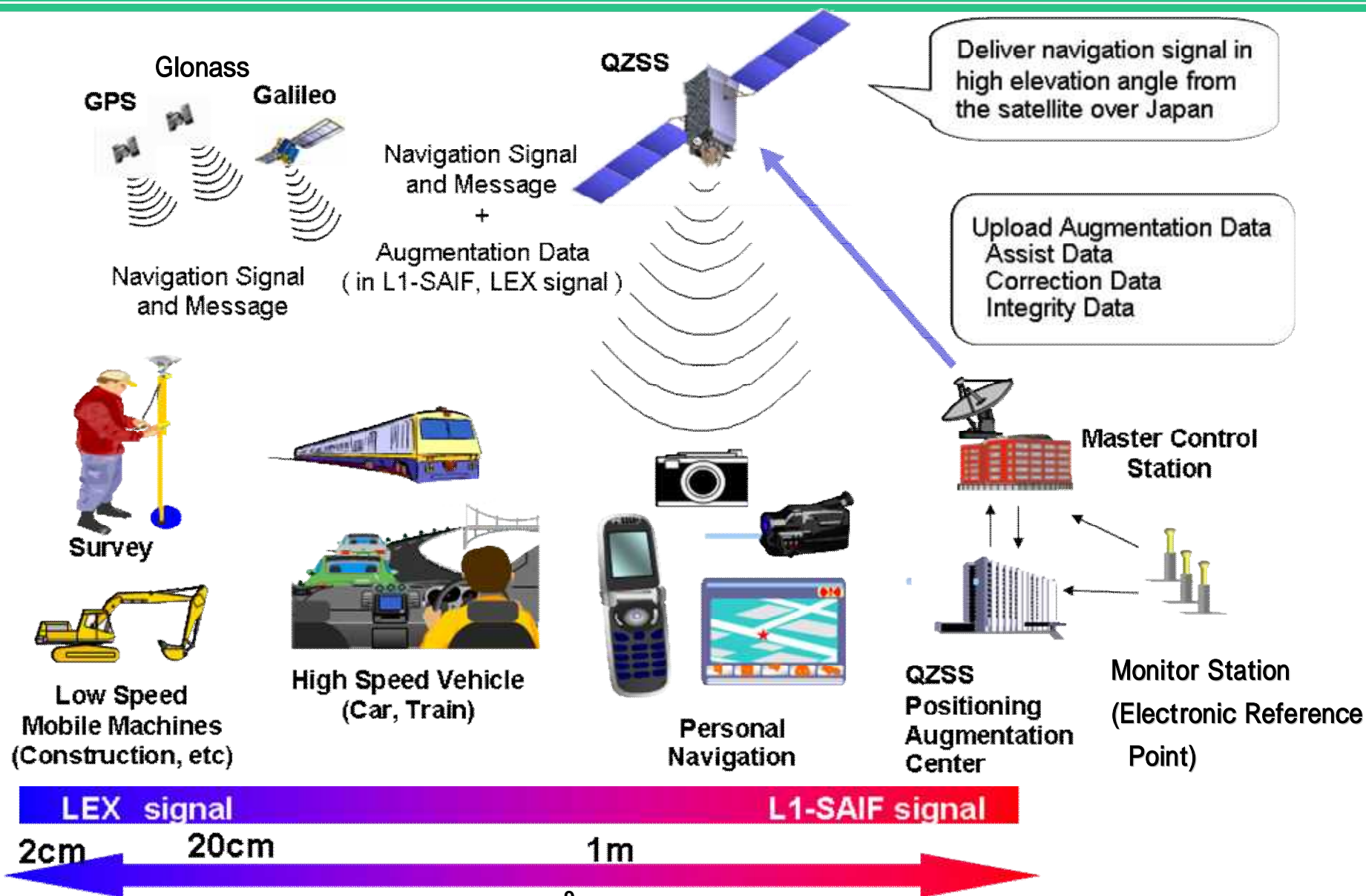
Phase 2

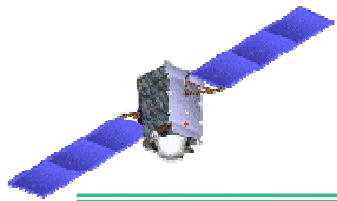
- Based on the result of in-orbit demonstration, manufacturing of the other two satellites will be started.



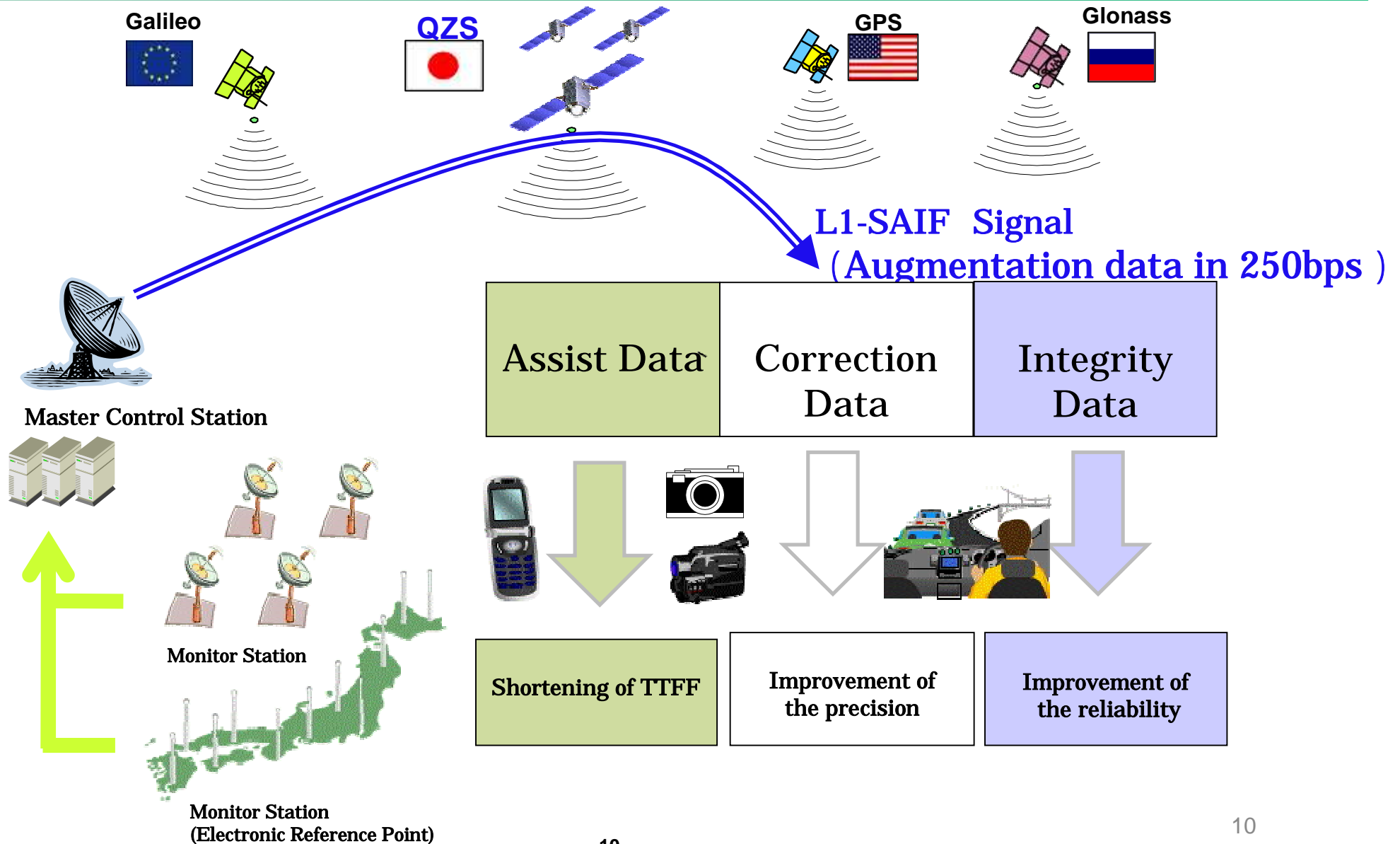


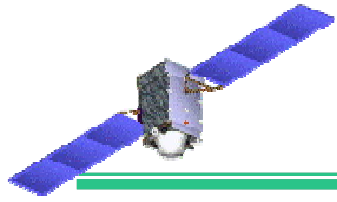
GNSS Augmentation Service Under Study



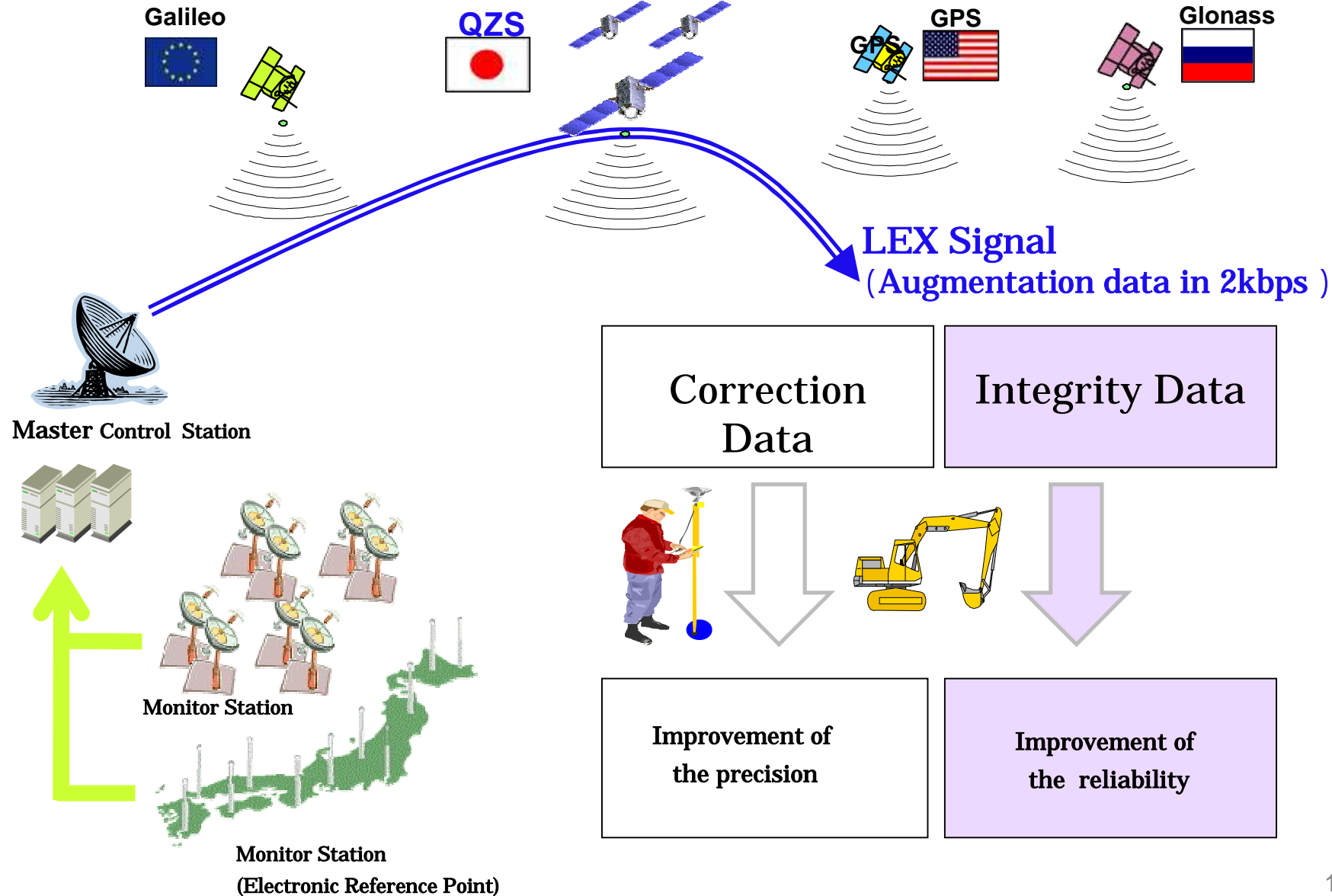


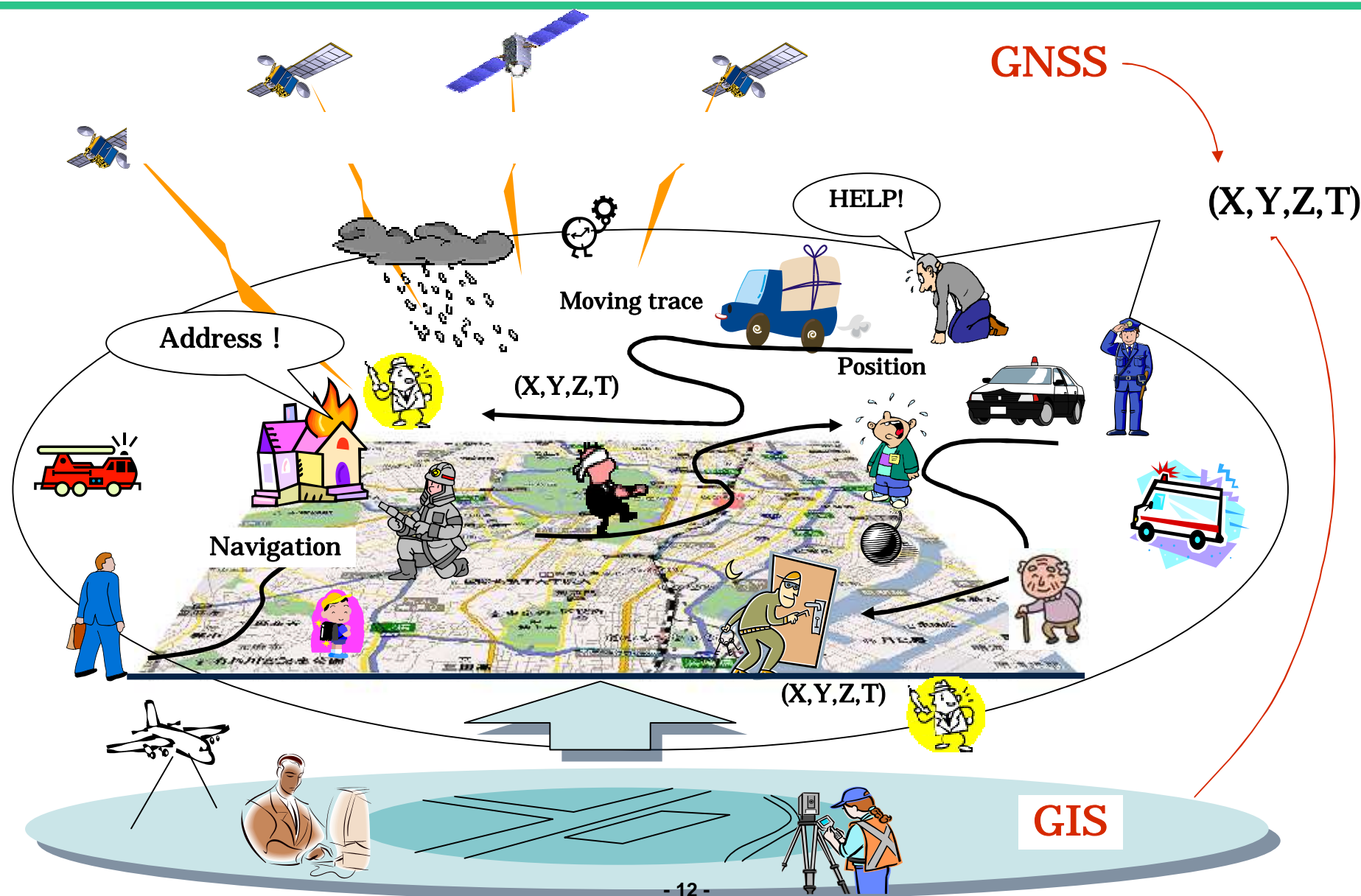
L1-SAIF Signal



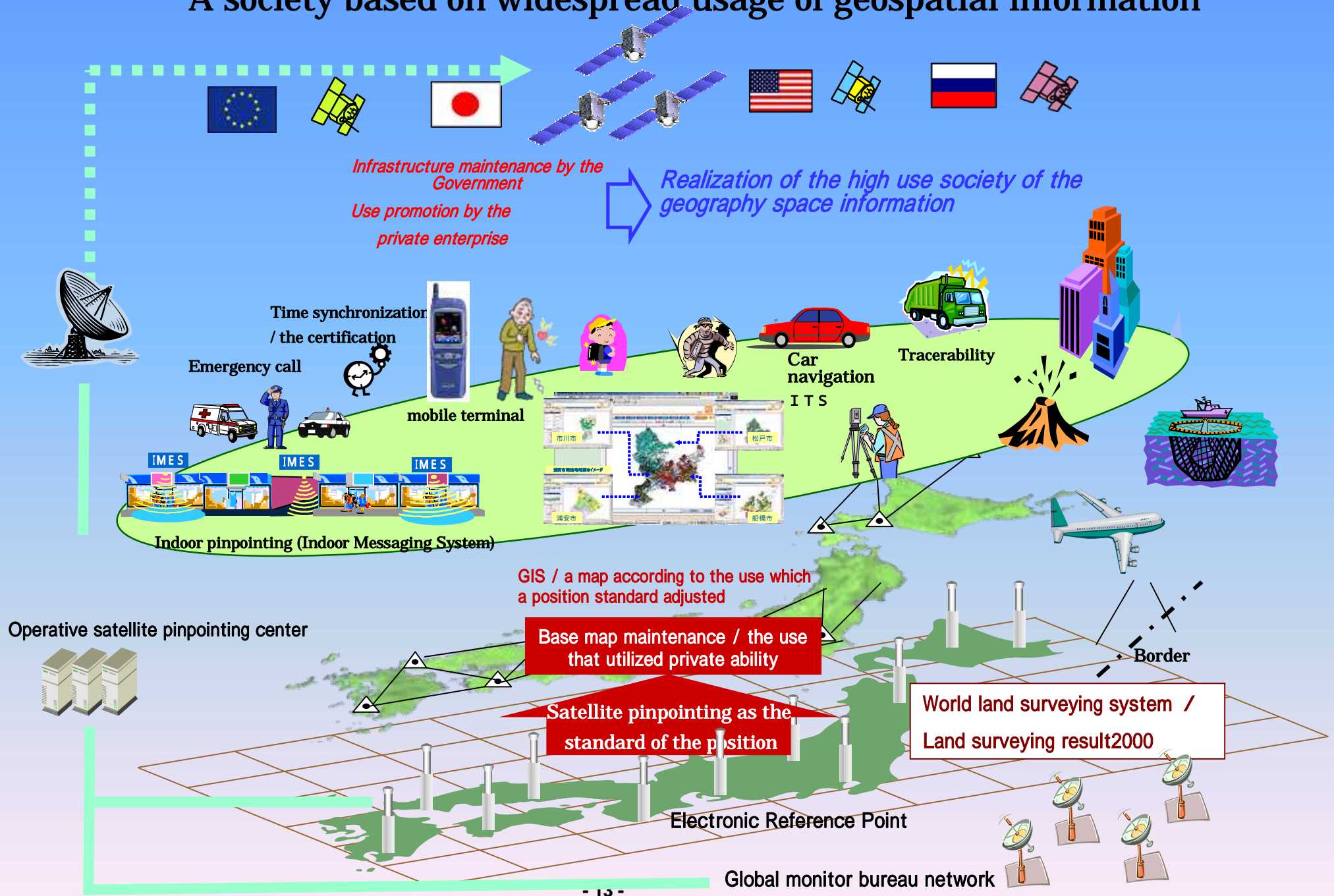


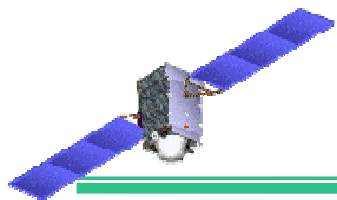
LEX Signal





A society based on widespread usage of geospatial information





8 Categorization

Natural Disaster Prevention/Security

Information gathering during
natural disasters/support for
natural disaster recovery

Transportation/Traffic/ITS

Reduction of accidents involving
pedestrians/bicyclists

National Land Management/Environment

Risk management for soil pollution

Entertainment

Creation of a tourism/travel
information system with
seamless operation anywhere



New Business Opportunities

Provision of necessary information
wherever and whenever required

Construction/Civil engineering /Agriculture, forestry and fisheries

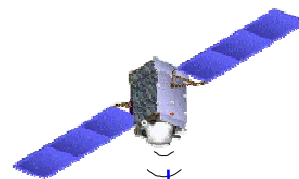
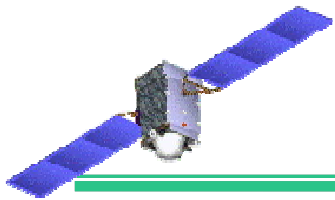
Automated construction through
Construction equipment worksite
positioning

Medical/Welfare

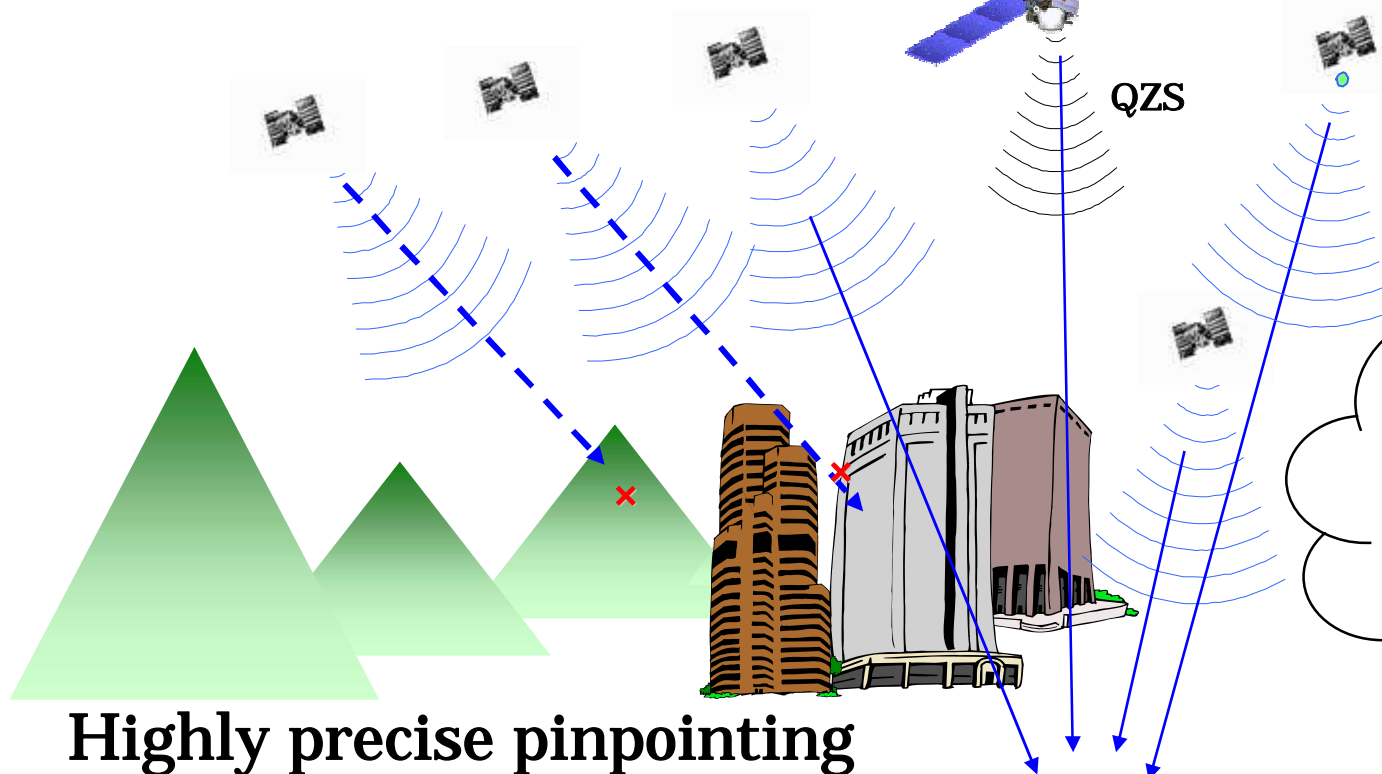
Nationwide implementation of
Position management of homecare
attendants

Labor/Time Management

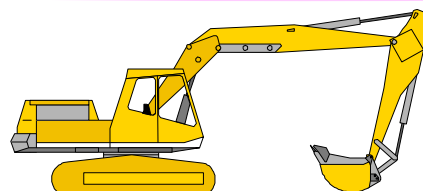
Creation of a work scheduling
management system with seamless
operation anywhere

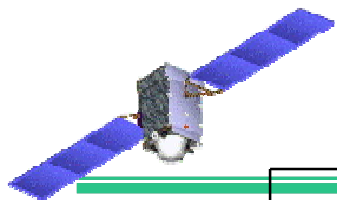


QZS

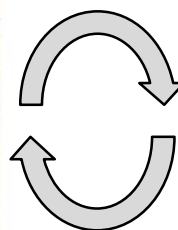
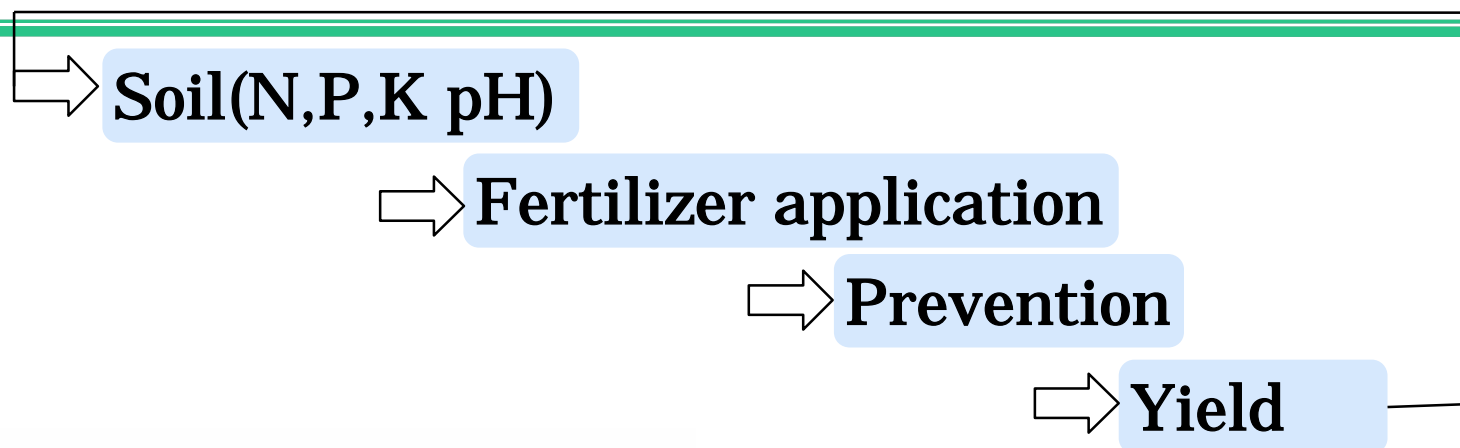


Traffic jam relaxation
Gas reduction
Fuel reduction





Precision Farming

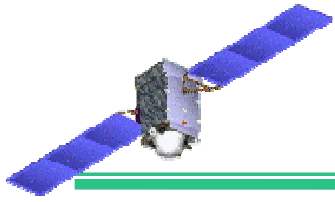


Remote sensing

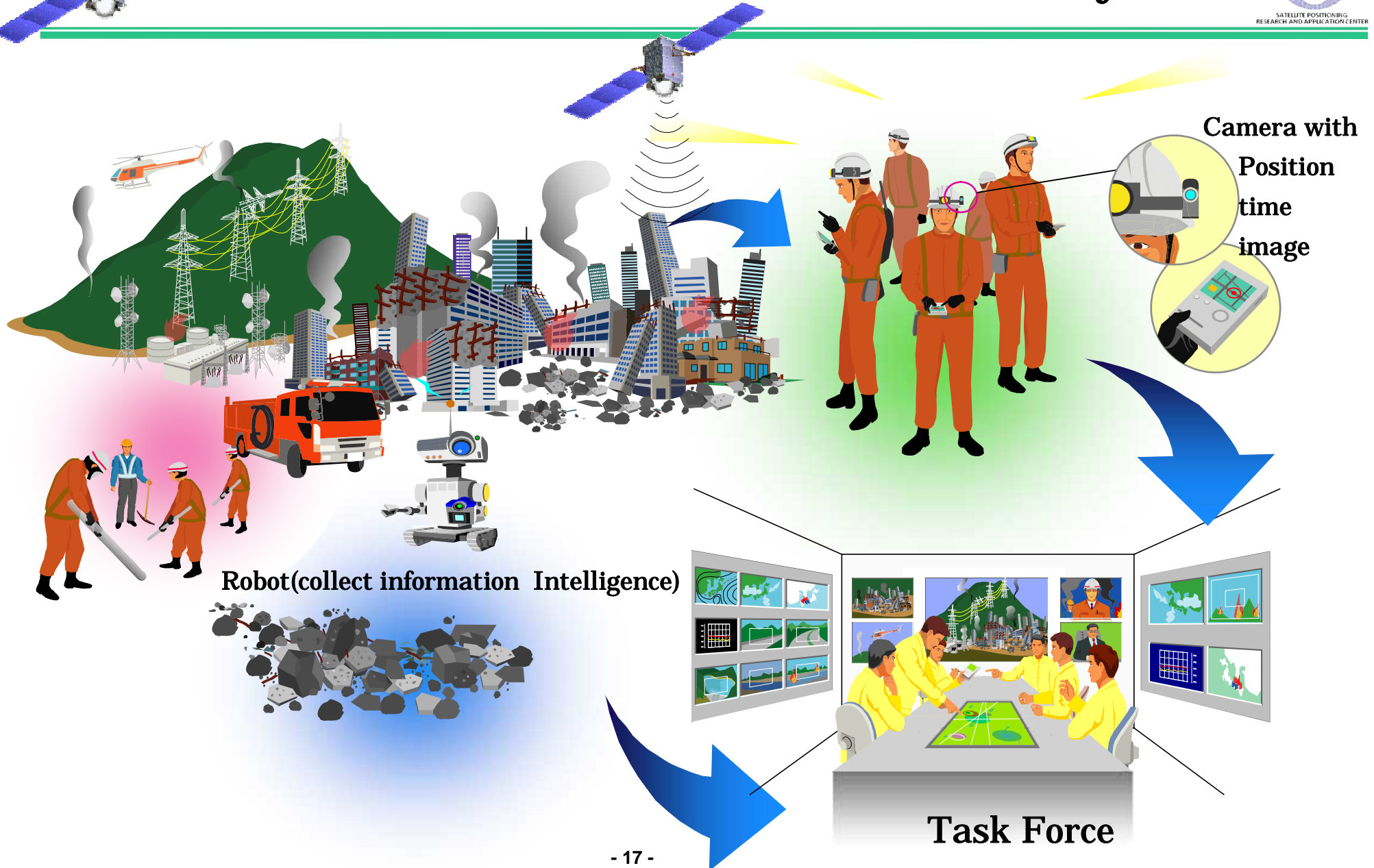
Automatic
run

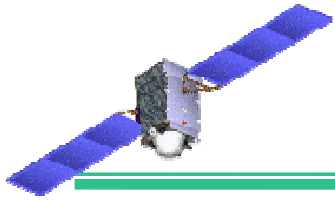
GIS

Precision Farming



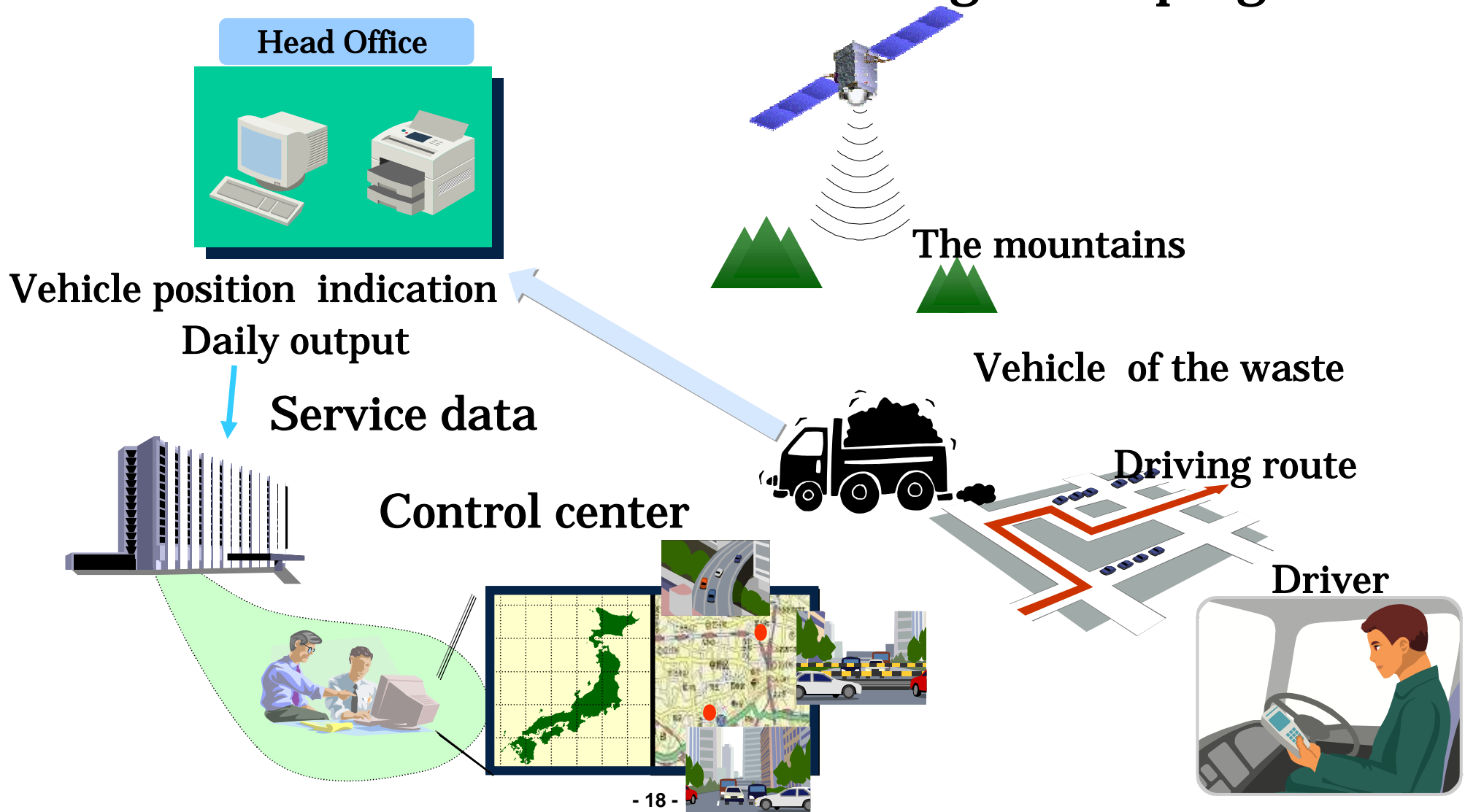
Natural Disaster Prevention/Security



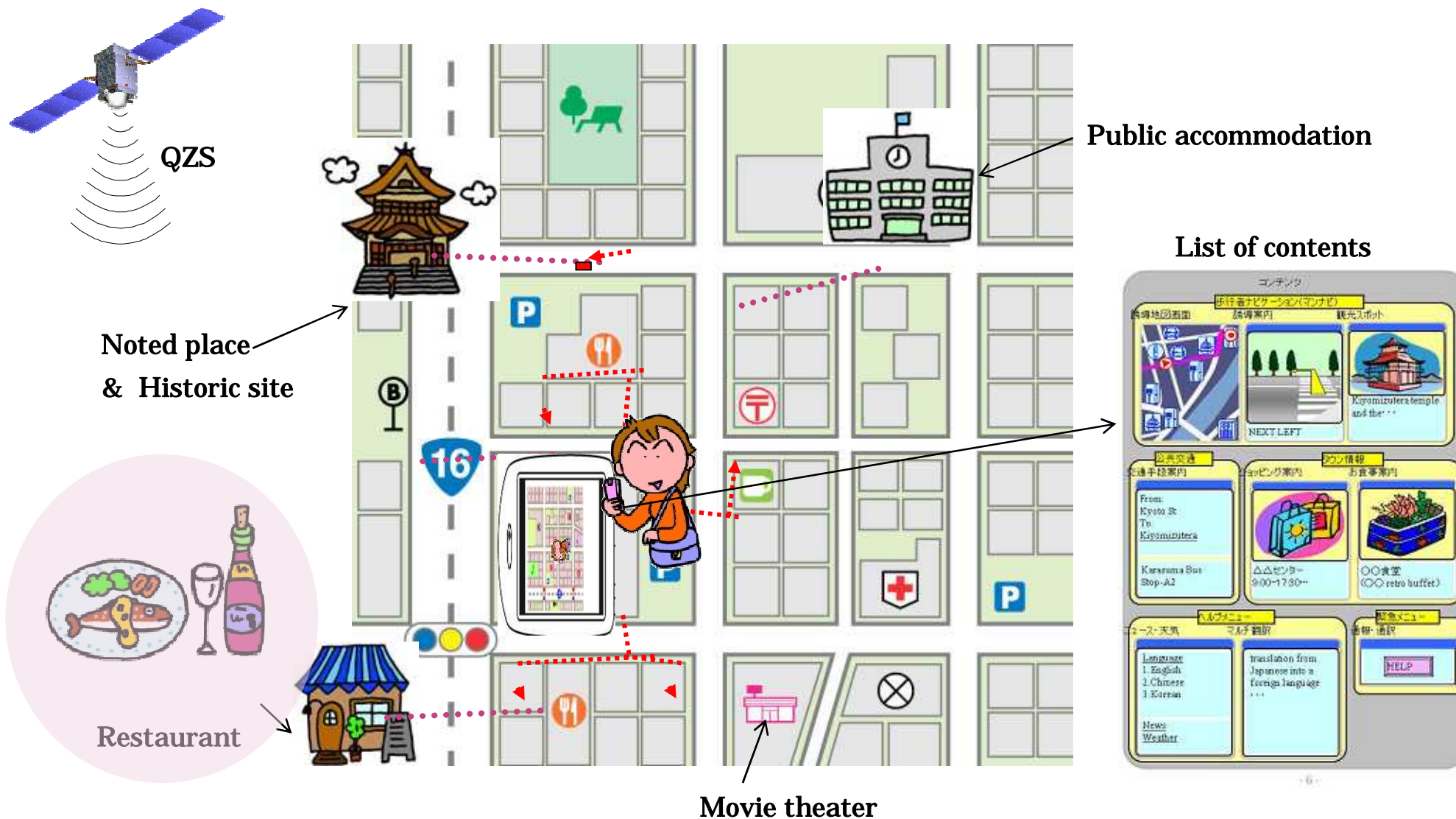


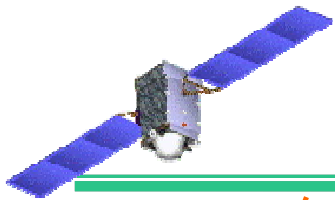
Natural Land Management/Environment

Monitor of the industrial waste illegal dumping



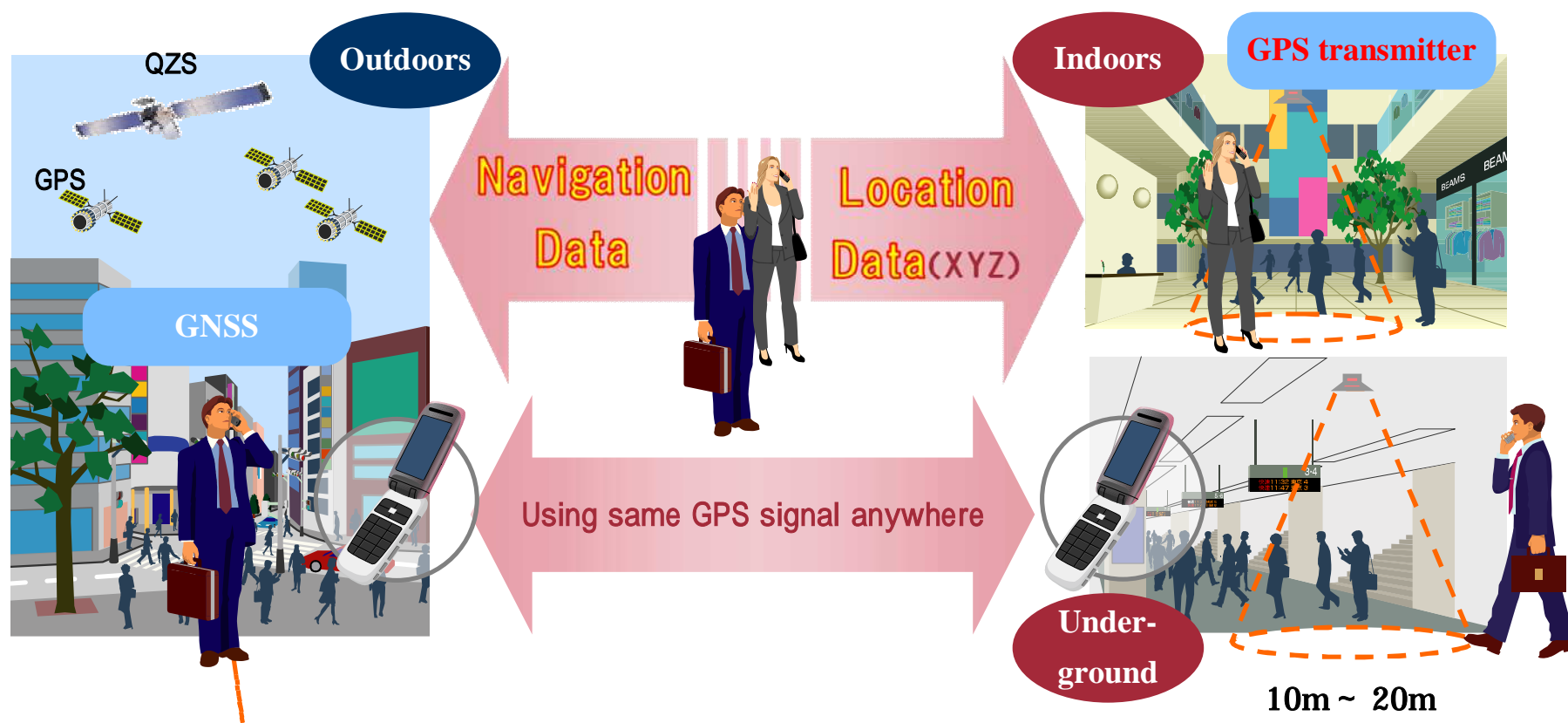
The concierge service of the town(personal navigation)

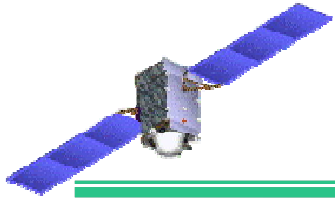




Seamless LBS platform (1)

GPS transmitter provides indoors location information
with GPS cellular phone





Seamless LBS platform (2)



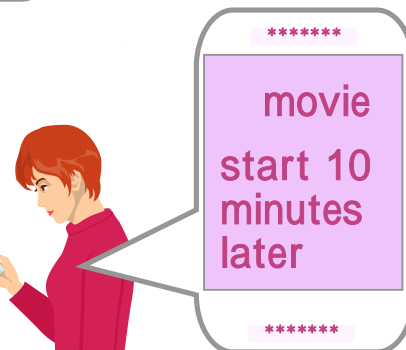
New valuable services are coming on stage

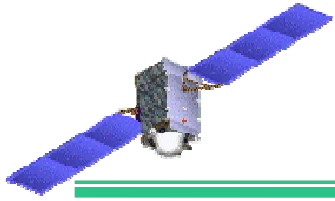
Based on Indoors location information, a lot of new value-added services, such as navigation , mobile advertisement and store guidance are coming in.

Child Watching

Induction and search at disaster

Solution for Industrial field





Idea Competition in JAPAN

1st QZSS Award

(Dec.12 2007 ~ Mar. 31 2008)

Parallel Scape



第2回 あっ!!と驚く位置利用サービスアイデア大募集

衛星測位による地理空間情報の活用推進

我が国最初の測位衛星である準天頂衛星*(1号機)が2010年に打ち上げられます。準天頂衛星は日本のほぼ真上にあるため、GPS測位の精度向上や測位可能な時間・場所が改善されます。これらの特長を活かした位置情報利用の斬新なアイデアを広く募集しています。詳細は以下のSPACホームページをご覧ください。

SPACホームページ <http://www.eiseisokui.or.jp>

※1号機測位についてUJAXAホームページをご覧ください。 <http://www.jaxa.jp/press/200704/070401.html>

●応募期間 / 2009.2.28日 消印有効

●応募フォーマット / A4サイズ用紙表裏両面
図、イラスト、写真なども添えてわかりやすく

●応募欄 / 住所・氏名・年齢・職業・連絡先電話番号・E-mailアドレス

●応募資格 / 日本国内在住の個人

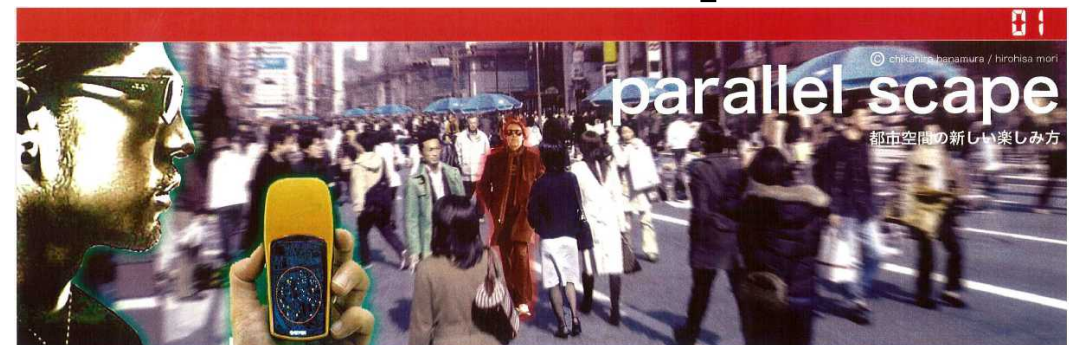
●応募方法 / 郵送
〒402-0083 東京都千代田区麹町4-4-7 麹町DUPLEX B5F
財団法人衛星測位利用推進センター アイデア公募係

※応募作品は選別させていただきます。必要ならばコピーをとっていただく。

●賞金 / 最優秀賞 20万円 優秀賞 5万円 佳作賞 5万円
選考委員は、本誌巻により構成(随時決定)

●賞状式 / 2009年5月14日(第5回衛星測位推進フォーラム)で行う予定

お問い合わせ先/財団法人衛星測位利用推進センター アイデア公募係
TEL:03-5216-5450(代表) e-mail:spacinfo@eiseisokui.or.jp <http://www.eiseisokui.or.jp>



Hunter: sakuma

>佐久間良治は片手にもった携帯デバイスにちらちらりと目をやりながら御堂筋の道を駆け抜けていった。通勤客の押し合う地下鉄から抜け出し、信号が変わるや否や、人をかき分け、南の方へ向かっていった。少々急いでいるやうが怒るなあとと思った通行人はいたかもしれない。張だしい朝の光景としては彼の姿はあまりにもありふれていた。だが、佐久間が追っていたのは、この街に潜む人間の変なエピソードの一人である。

>GPS モニターの表示によると、近くにいるのは wise というエイリアンで、特に動こうともせずにじっと止まっている。表示されているのは wise 一人だけで、ほかの仲間には思えないようだったが、それは佐久間の方も同じ状況であり、他のハンターの反応は期待できそうに無かった。

>”凶悪なヤツでなければいいのに...”

佐久間は心の中でそう思いながらも、通勤ラッシュの人ごみの中に分け入り、モニターで位置を確認した。佐久間は wise の姿を見た事が無いので、モニターを頼りに周囲を見渡し、それらしい人物を捜す他はないのだが、群衆の中の方がエイリアンは発見しにくいのだ。



Alien: wise

>エイリアン wise はサングラスに仕込んだ GPS モニターをじっと見ながらハンターがやってくるのを待っていた。モニター画面にはアカウントネームが sakuma と表示されているが、wise はそのハンターを今まで一度も見ただ事なかった。憎たらしい朝のラッシュ時なので、人間がたくさん歩いているが、wise の正体を知るものは誰も居ない。サングラスをかけ、ポケットに手を突っ込んだまま中年としか人々には映っていないだろう。sakuma だけが GPS モニターの中で存在を確認しているはずだ。

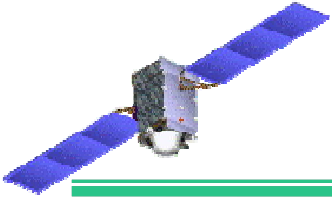
>ハンターが近づいてくるので、wise は一瞬逃げようかどうかと迷ったが、初めて逢うハンターなのでコンタクトを試みることにした。

>”いきなり攻撃することはないだろう...”

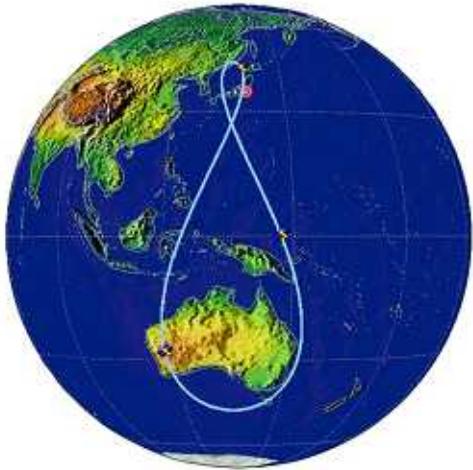
そんな事を考えていると、群衆の中にそれらしいヤツが現れた。GPS モニターの位置でも判断できるが手にしたデバイスでハンターである事が一目瞭然である。

>”素人だな...”

wise はそう思いながらも、sakuma の方へ向かって歩いてく事にした。

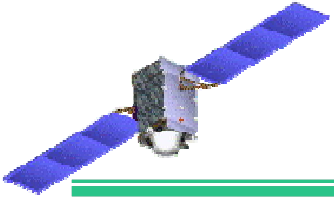


QZSS is effective as a Regional positioning satellite



R&D Application Service in Japan

Let's examine the use of QZSS in cooperation



Thank you