

Tsunami Monitoring System for early warning by using GNSS

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Background

- The Earthquakes and Tsunamis have caused extensive and severe damages in Japan
- The systems to provide accurate and necessary information for tsunami evacuation more quickly and surely have been researched and developed

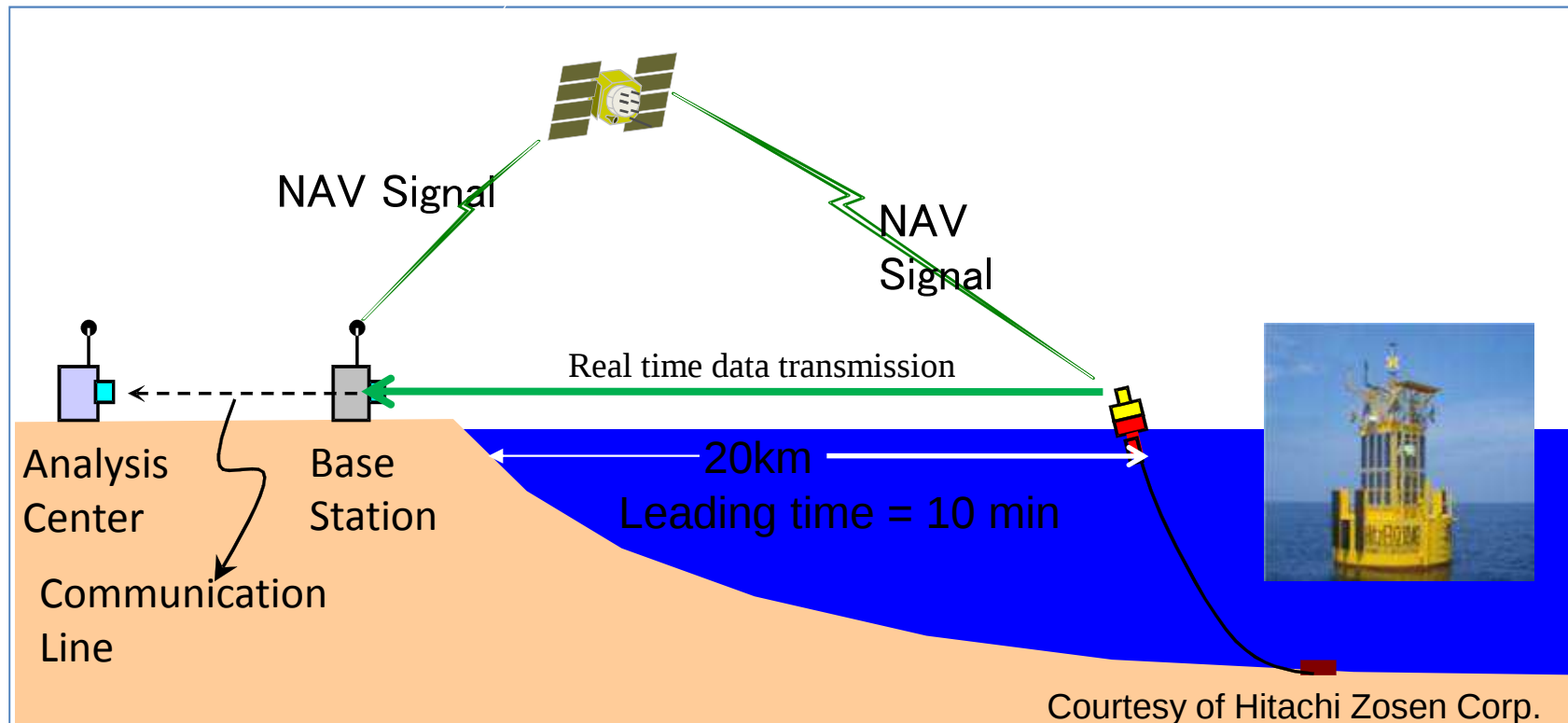


AP/Press Association image



Tsunami Monitoring System (current)

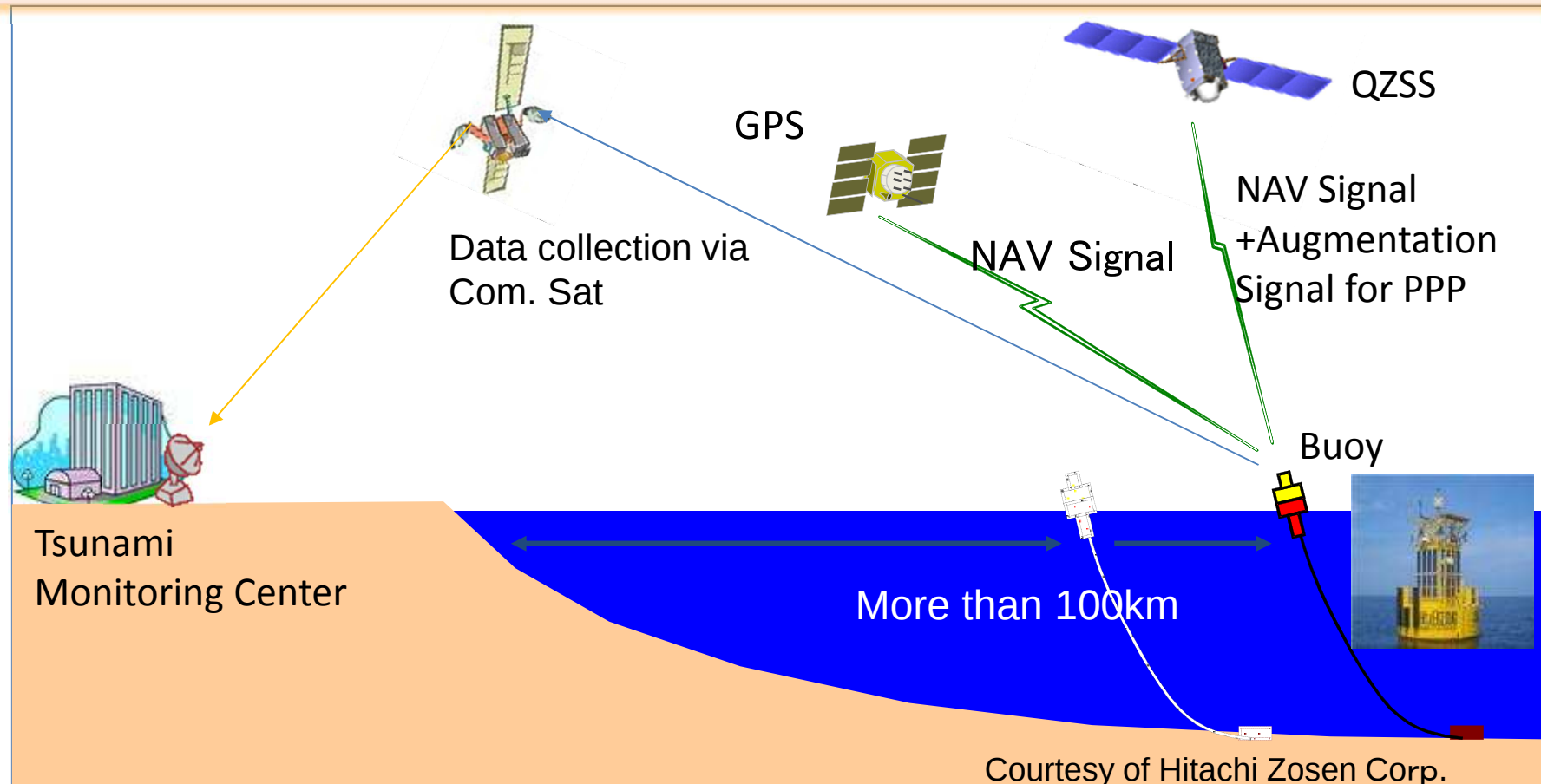
- Existing System uses RTK-GPS, therefore the accuracy is getting decrease if the distance from coast is more than 20 km
 - condition due to the length of base line of RTK and communication line
 - Coastal base station necessary
 - inadequate time from detecting Tsunami to warning and evacuation



Tsunami Monitoring System (Next Gen)

Precise Point Positioning (PPP) by via QZSS LEX signal can provide precise position (target accuracy: less than $\pm 10\text{cm}$)

- No coastal equipment necessary -> the buoy can be put more than 100 km far from costal area
- More time for early warning and evacuation after Tsunami detection
- Decreasing data amount by sending only positioning results



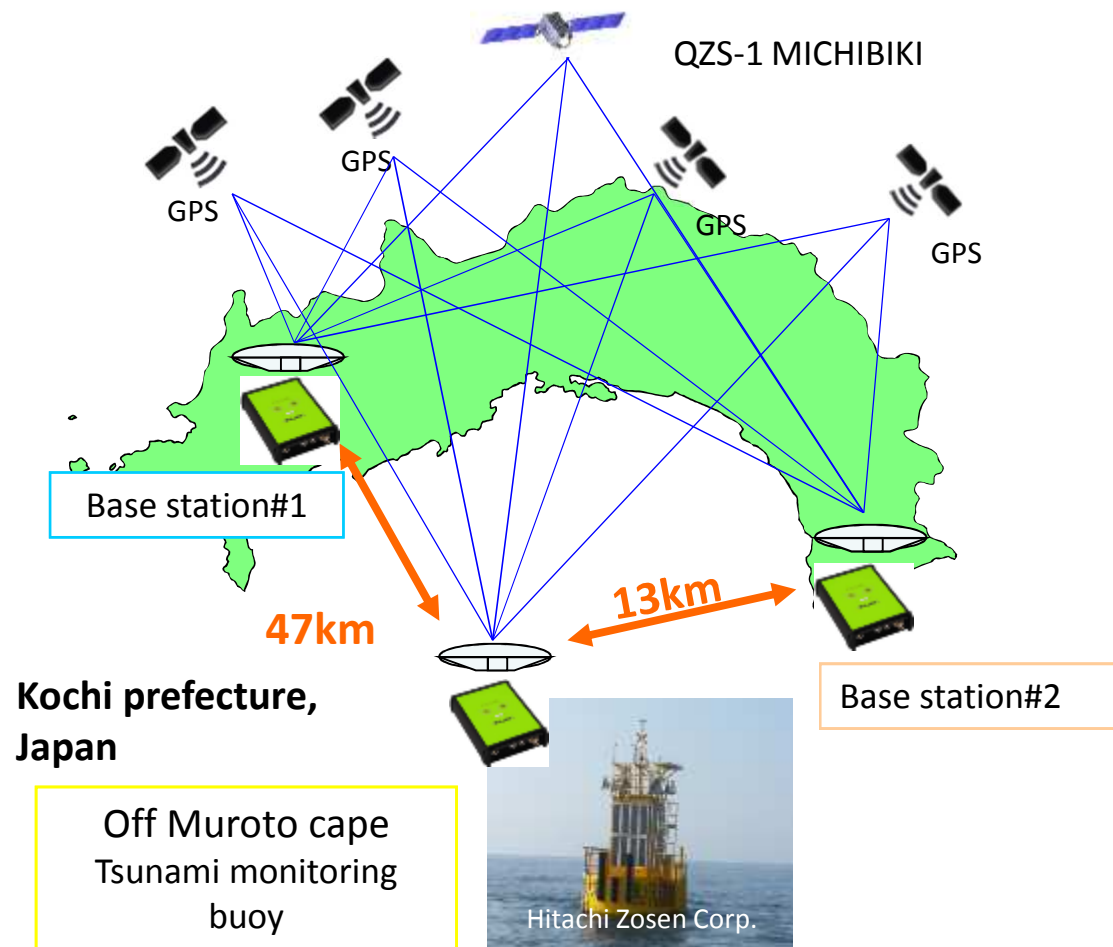
Courtesy of Hitachi Zosen Corp.

Experiment 2011-2012

Hitachi Zosen Corp., Tokyo Univ.,
Kochi national College of Technology
and JAXA

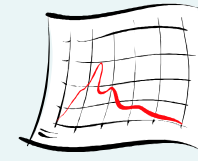
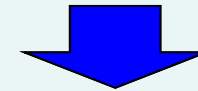
Application to Tsunami buoy system

- Install GNSS receiver on tension mooring buoy
- Compare LEX-PPP with Kinematic (BL=13, 47km)
- 1st gen orbit/clock estimation system



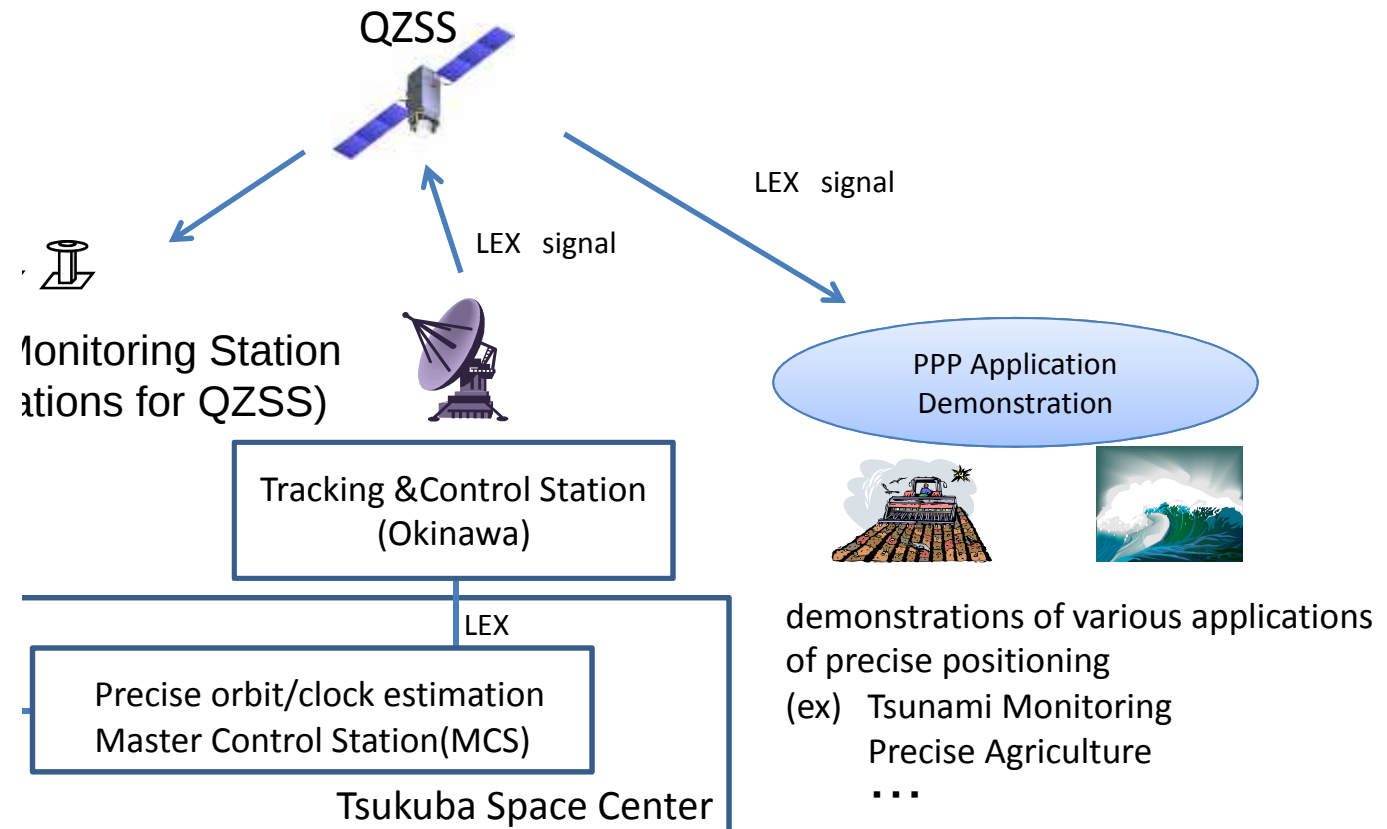
Data analysis

in postprocess



Compare LEX-PPP
with kinematic
method

Configuration for Precise Pointing (PPP) Technical Experiment



https://www.yunbaogao.cn/report/index/report?reportId=5_7114

预览已结束，完整报告链接和二维码如下：

