On Asia-Europe link

NICT

National Institute of Information and Communications Technology

Asia-Europe link via PAS-4

- TL- VSL link; a pioneering link since 2003.
- Regular time transfers of NICT, KRIS/PTB since 2005.
- Other plan

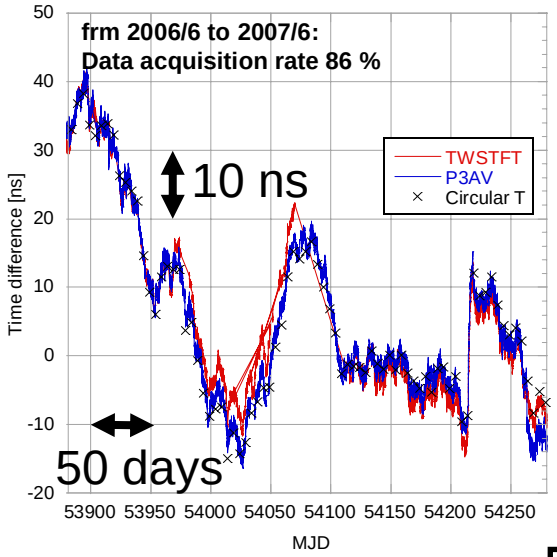
  New participation: NMIJ, NTSC, OP….

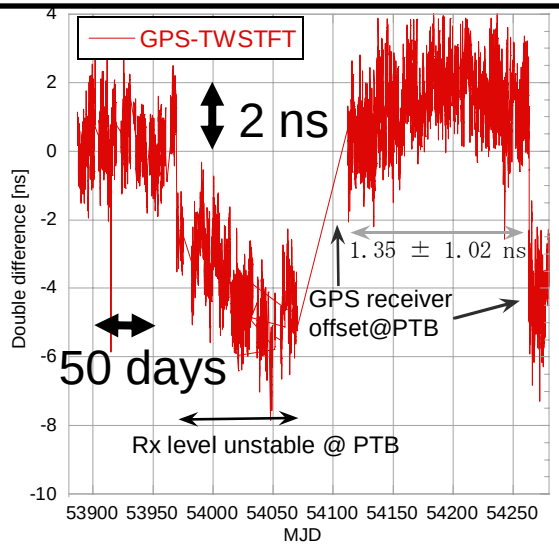
TWSTFT status

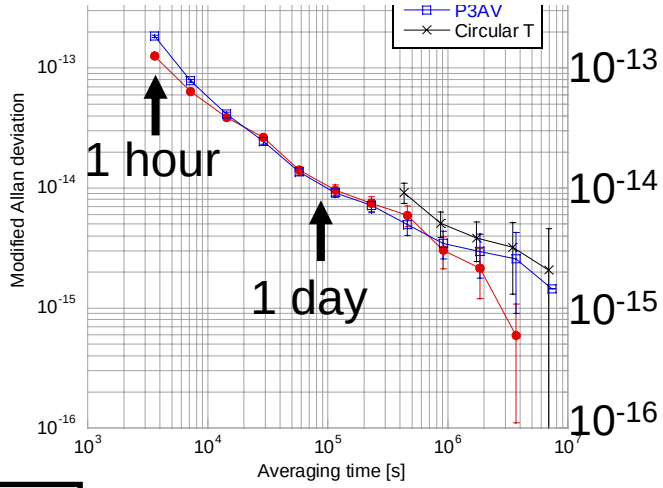
Details will be reported by

M. Fujieda

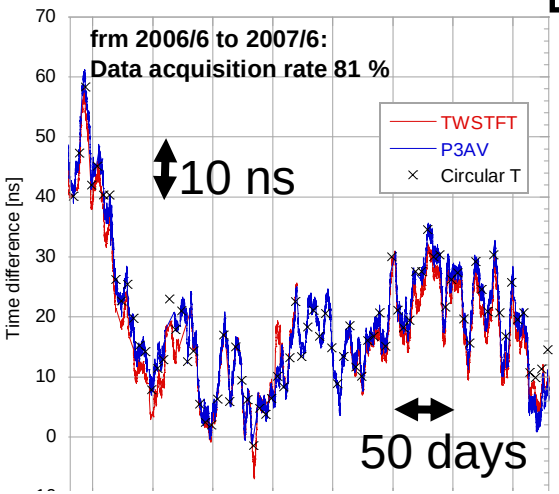
NICT-PTB: 2006/6 – 2007/6

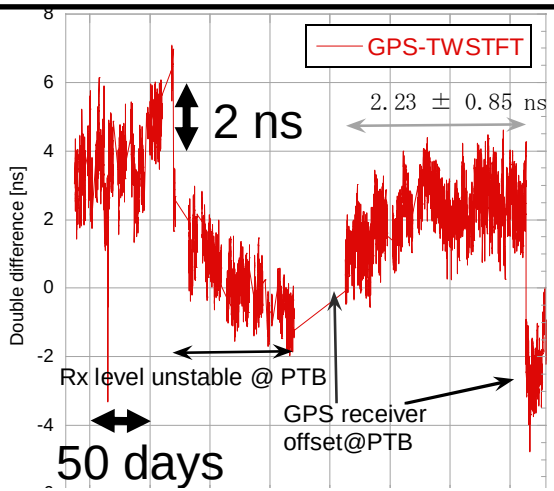


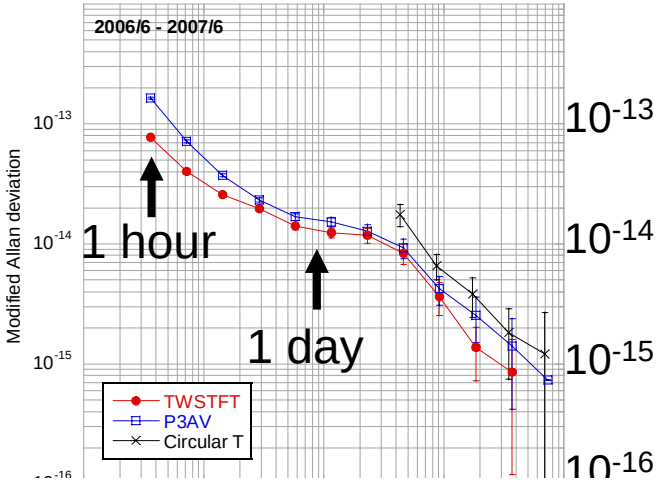




KRISS-PTB: 2006/6 – 2007/6







Asia-Europe link via PAS-4

- Promotion of PAS4 Asia-Europe link

- Until 2009/3, NICT will pay the link fee.
  - The contract is now in process.
  - Please join the link with no charge.
  - Time divided session into SATRE-modem link and NICT-modem link.

- From 2009/4, NICT would like to share the fee with participants of the link.
  - Integration into SATRE-modem link

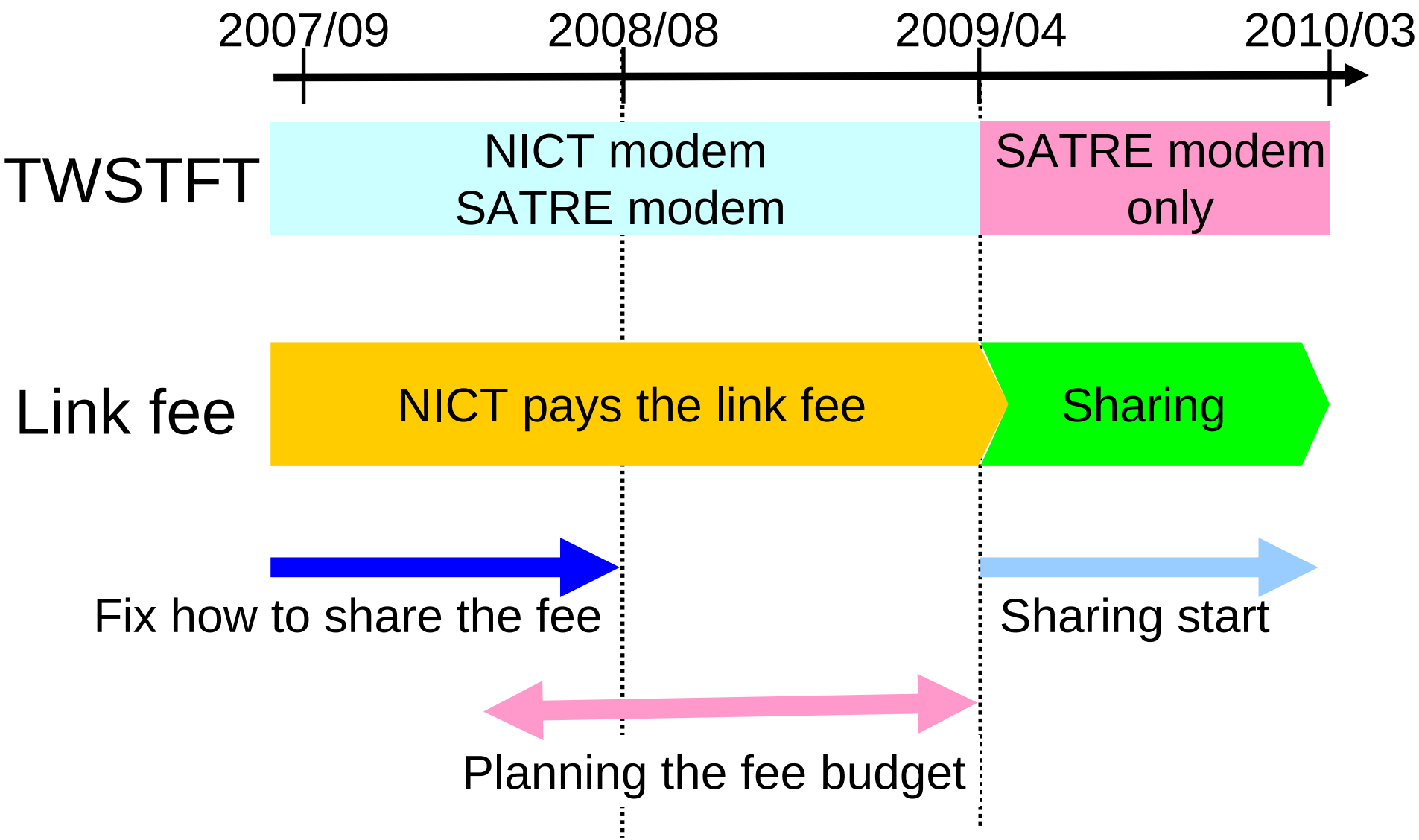
Asia link via JCSAT-1B

- NICT will keep the links via JCSAT-1B

  The operation will be continued
  by using **NICT modem**.
  Any station who are using NICT modem
  is welcome to continue the link.

- On the link via PAS-8, NICT cannot afford it
  and has stopped it since July 2007.

Time schedule: a proposal



Link fee: 5 MHz transponder

- US$ 15900/month (US$ 190800/year)
- Pay the fee to Japan branch office of Intelsat co.
- Fee division on a monthly basis by participants

For example:

Month	4	5	6	7	8	9	10	11	12	1	2	3
Site	NICT	NICT	KRIS	KRIS	TL	TL	NMIJ	NMIJ	NTSC	NTSC	OP	PTB

- A Master Agreement is required.
  - NICT will be in charge of the agreement,
    pay the fee of 2009/4 and assure the payment.
- Each contribution should be paid by 2010/3.
  - Each institute must make a contract with Intelsat Japan BO.

PAS-4 information

•Exclusive possession of transponder by Indian company seems to be disappeared.
We can keep PAS-4 link for years.

• Announced lifetime ends in 2010/8.
Intelsat will launch its successor.

Draft TWSTFT time table until 2009/3

Compatibility of both NICT-modem link and SATRE-modem link

TWSTFT Schedule Europe <-> Asia

NICT modem link(0:50 - 0:10)

First	Last	Action	Length	Eu					Asia						
				PTB					NICT		KRIS		NMIJ		Lab
				TX	RX1	RX2	RX3		TX	RX	TX	RX	TX	RX	
hhmmss	hhmmss		s												
UTC	UTC			0					1		2		3		TX code
		U/D link		UEA	DEA	DEA	DEA		UAE	DAE	UAE	DAE	UAE	DAE	
0:50:00	0:54:59	Prep.time	300												
0:55:00	0:59:59	CC&Freq. search	300	CC					CC		CC		CC		
0:00:00	0:04:59	Measure	300	1	0	2	3		0	1	2	1	3	1	
0:05:00	0:06:59	Measure(spare)	120	1	0	2	3		0	1	2	1	3	1	
0:07:00	0:09:59	Prep.time	180												
0:42:00	0:49:59	Special experiment	480												

NICT-modem link:
XX:50 - XX:10

SATRE modem link(0:10 - 0:42)

First	Last	Action	Length	Eu						Asia										
				PTB		OP		VSL		NICT		NTSC		TL		KRIS		NMIJ		Lab
hhmmss	hhmmss		s	-20		0		20		-20		0		20		-40		40		offset kHz
UTC	UTC			0		1		2		3		4		5		6		7		TX code
		U/D link		UEA	DEA	UEA	DEA	UEA	DEA	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	
0:10:00	0:10:59	Prep.time	60	CC		CC		CC		CC		CC		CC		CC		CC		
0:11:00	0:11:59	CC	60	CC		CC		CC		CC		CC		CC		CC		CC		
0:12:00	0:12:59	Prep.time	60	0	3	1	4	2	5	3	0	4	1	5	2	6		7		
0:13:00	0:17:59	Measure	300	0	3	1	4	2	5	3	0	4	1	5	2	6		7		
		U/D link		UEA	DEA	UEA	DEA	UEA	DEA	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	
0:18:00	0:18:59	Prep.time	60	0	4	1	5	2	6	3		4	0	5	1	6	2	7		
0:19:00	0:23:59	Measure	300	0	4	1	5	2	6	3		4	0	5	1	6	2	7		
		U/D link		UEA	DEA	UEA	DEA	UEA	DEA	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	
0:24:00	0:24:59	Prep.time	60	0	5	1	6	2	7	3		4		5	0	6	1	7	2	
0:25:00	0:29:59	Measure	300	0	5	1	6	2	7	3		4		5	0	6	1	7	2	
		U/D link		UEA	DEA	UEA	DEA	UEA	DEA	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	
0:30:00	0:30:59	Prep.time	60	0	6	1	7	2	3	3	2	4		5		6	0	7	1	
0:31:00	0:35:59	Measure	300	0	6	1	7	2	3	3	2	4		5		6	0	7	1	
		U/D link		UEA	DEA	UEA	DEA	UEA	DEA	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	UAE	DAE	
0:36:00	0:36:59	Prep.time	60	0	7	1	3	2	4	3	1	4	2	5		6		7	0	
0:37:00	0:41:59	Measure	300	0	7	1	3	2	4	3	1	4	2	5		6		7	0	
0:42:00	0:49:59	Special experiment	480																	

CC: Clean Carrier

UEA: european uplink frequency to Asia (14.42625 GHz)
DEA: european downlink frequency from Asia (11.465 GHz)
UAE: asian uplink frequency to Eu (14.265 GHz)
DAE: asian downlink frequency from Eu (12.678250 GHz)

SATRE-modem link:
XX:10 - XX:42

Draft proposal for TWSTFT session rules until 2009/3

- NICT-modem link
  - -All links are measured simultaneously.
  - -NICT operates all NICT-Modems.
  - -Each station should be responsible for its own data conversion to ITU format.
- SATRE-modem link
  - -Time transfer is done in compliance with a time table.
  - -Modem control and data conversion to ITU format are done by each station.
  - -Chip rate and BW of transponder are 2.5 MHz.
  - -To limit out-of-band transmission, each station should prepare BPF and insert it into Tx path.

How to share the link fee from 2009/4

- Monthly payment is the minimum unit.

- It may be difficult to close a fair and square share in a year.

- How ?

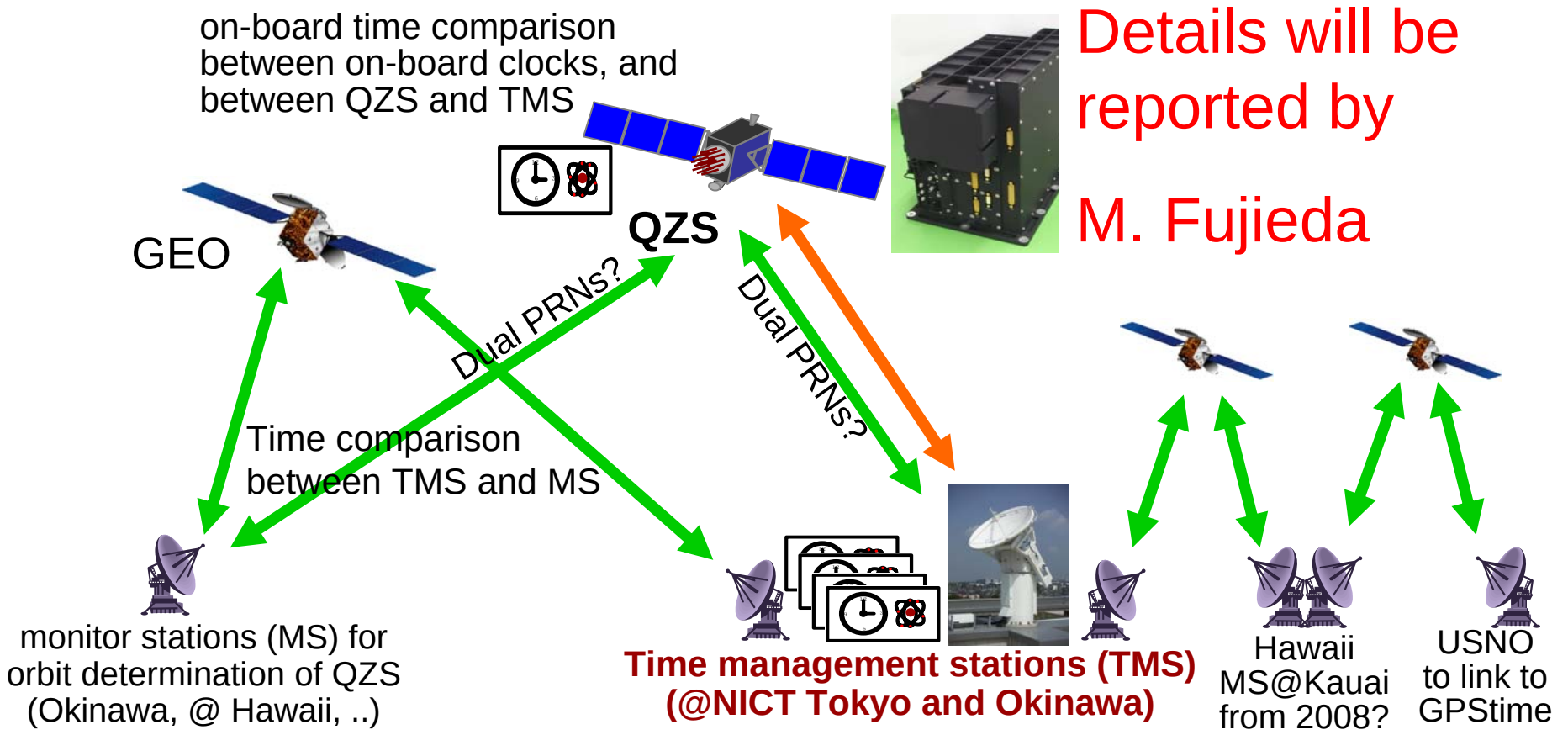
- Each station's share should be decided by the end of July, 2008.

Summary

- For these three or four years, PAS-4 link seems to be available. *Let us use the most of this link.*
- NICT will cover the link fee until Mach 2009 (Both NICT modems and SATRE modems)
- From April 2009, NICT hope to share the fee. The paper work should be started by Aug. 2008. Monthly payment is possible. The plan should be decided by the start of the paper work.
- A longer term plan should be discussed.

QZSS: Quasi-zenith satellite system

TWSTFT relay station @Hawaii with QZSS MS



Details will be reported by

M. Fujieda

between QZS and TMS (Ku-band)

between ground stations (Ku-band)

QZS time – GPS time < 3ns