Communications Research Laboratory

Yasuhiro Koyama (Kashima Space Research Center)

Facilities

Observation Facilities

VLBI

34m (Kashima)
26m (Kashima)*
3m (Koganei)
11m x 4 (Key Stone Project#)

SLR

150cm (Koganei)
75cm x 4 (Key Stone Project#)

GPS

Ashtech x 4 (Key Stone Project#)

WVR

Radiometrix WVR-1100 x 2

* Operated and Maintained by Geographical Survey Institute
\# Koganei, Kashima, Miura, and Tateyama

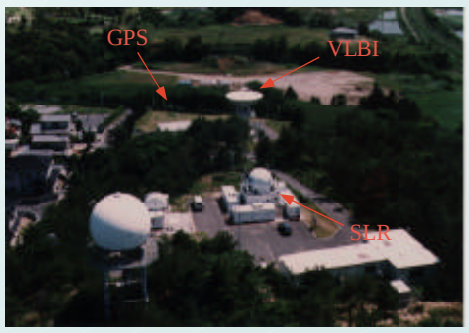
VLBI Correlators

K-3 Correlator (Kashima) : 1-baseline, Mark-III and/or K-4
K-4 Correlator (Kashima) : 1-baseline, K-4
KSP Tape-base Correlator (Koganei) : 6-baselines, K-4
KSP Real-time Correlator (Koganei) : 6-baselines, ATM Interface

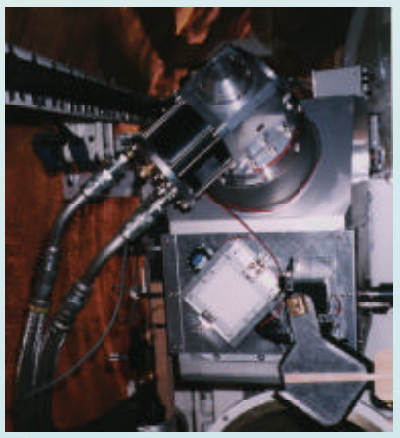
BAND	Tsys	RHCP/LHCP	Remarks
1.35-1.75 GHz	38 K	Both	20K Cryogenics + FET
2.15-2.35 GHz	71 K	Both	20K Cryogenics + FET
4.60-5.10 GHz	200 K	LHCP	No Cryogenics
7.86-8.68 GHz	52 K	Both	20K Cryogenics + FET
14.4-15.4 GHz	100 K	Both	20K Cryogenics + HEMT
21.8-23.8 GHz	200 K (Trec)	Both	20K Cryogenics + HEMT
42.9-43.4 GHz	50 K (Trec)	Both	4K Cryogenics + SIS

34m-antenna receiver status

34m-antenna and 26m-antenna (Kashima)



Key Stone Project observation facilities (Kashima)



43GHz SIS receiver in 4K
Helium-gas-cycle cryogenics system

On-going Programs and Developments

Key Stone Project

23.5 hour every-other-day VLBI observations since Sep. 30, 1997
GPS observations since May, 1997
SLR observations are beginning

GPS Meteorology

Pulsar Timing Observations and Pulsar VLBI

Interplanetary Scintillation Observations

Asteroid Radar

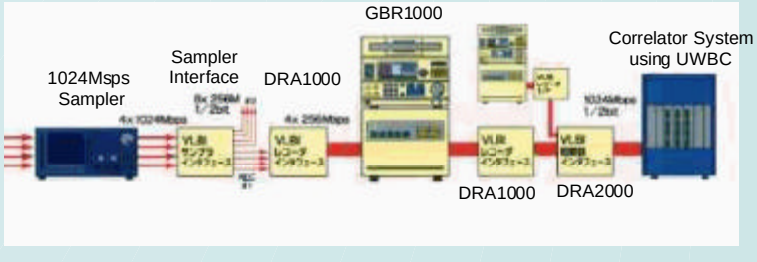
1 Gbps VLBI system developments

Correlation software is under development using UWBC (Ultra-Wide-Band Correlator) system developed for the Nobeyama Millimeter Array

Realtime VLBI interface system using public ATM network

Two-units have been completed and successful observations were done in March, 1998

A processing board for UWBC
(Ultra Wide Band Correlator)



Schematic Diagram of the 1Gbps VLBI System

1024Msps Sampler Unit
and Sampler Interface

1024Mbps Data-recorder Unit (GBR1000)
and Interface Unit (DRA1000)