

# Current status of VERA

Mareki Honma (VERA project, NAOJ)

13/Nov/2001 @ EAMA5

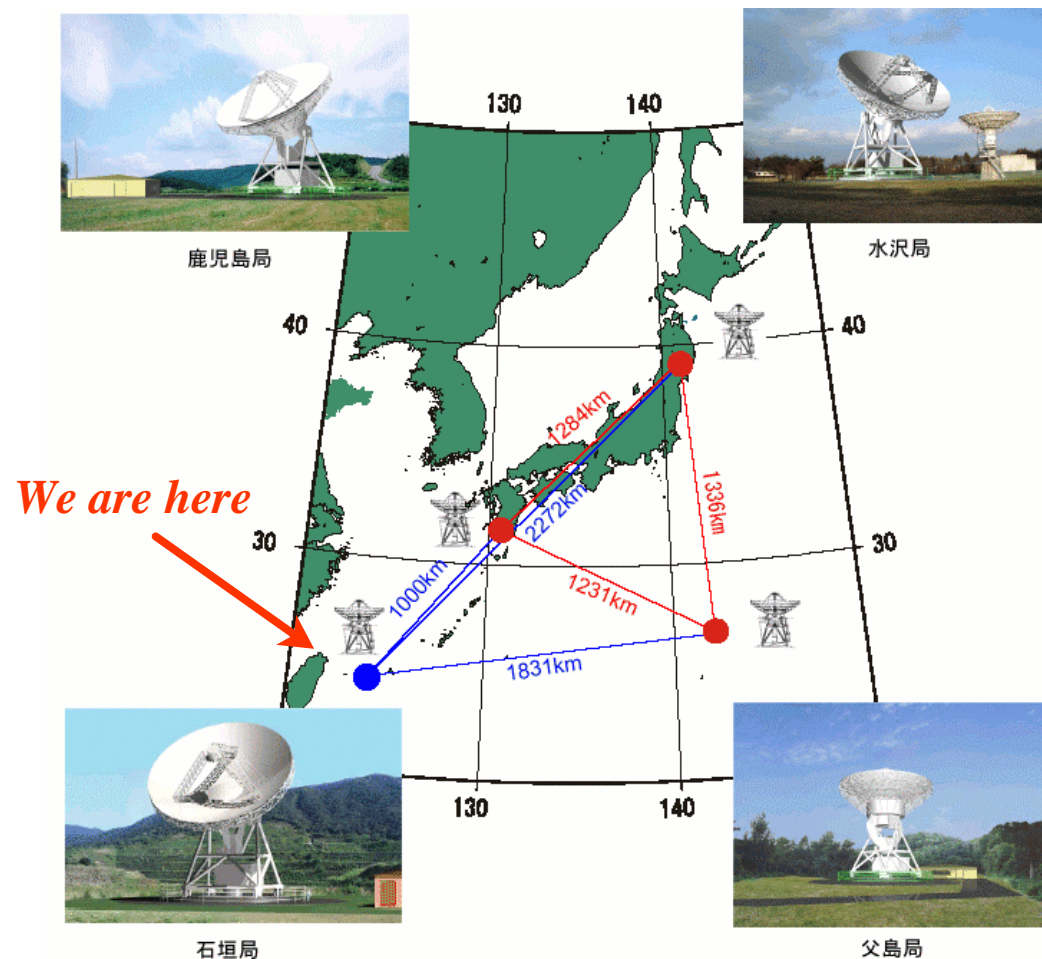


# Where are we ?

|                        |   |
|------------------------|---|
| 1999 Dec.              | <u>Approved</u> (three stations)                                      |
| 2000 Apr.              | Construction started  |
| 2001 Mar.              | <u>Three antennas completed</u>                                       |
| 2001 Apr. ---          | <u>system install &amp; setup</u> , <u>4<sup>th</sup> ant.started</u> |
| 2001 Oct               | <u>First light as single dish (at Mizusawa)</u>                       |
| <i>we are here ! ✍</i> | <u>First Fringe of Phase-cal. Noise Source</u>                        |
| 2001 Dec/02 Jan        | First light at Iriki and Ogasawara                                    |
| 2002 Mar.              | First fringe (real obj.), 4 <sup>th</sup> ant. finished               |
| 2002 April             | Dual-beam phase-referencing   |
| 2004 ---               | routine observations, common use<br>collaboration with East Asia ?    |

# VERA project

VERA: The First VLBI array dedicated to Phase-referencing  
Science target : to establish first 3D map of the Milky Way



## VERA array

- four stations
- 20m dual-beam antennas
- Max baseline : 2300 km





# VERA stations

Iriki

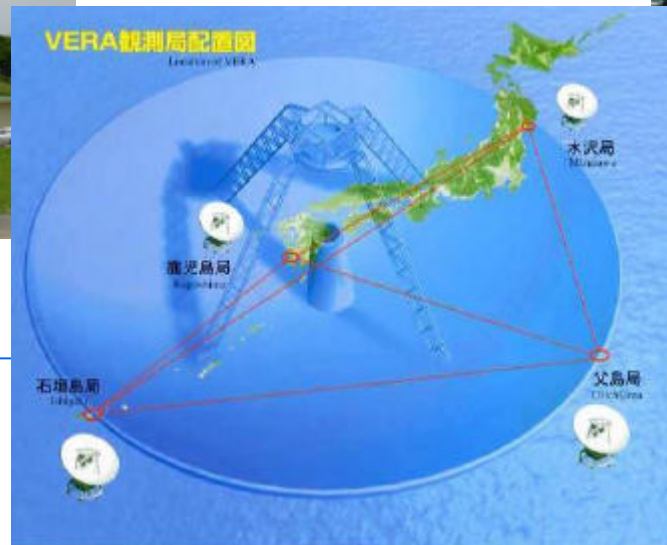
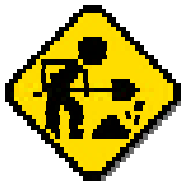


Mizusawa



Ishigaki

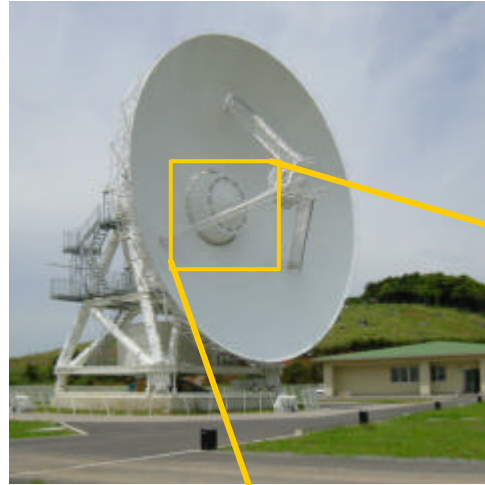
(under construction)



Ogasawara

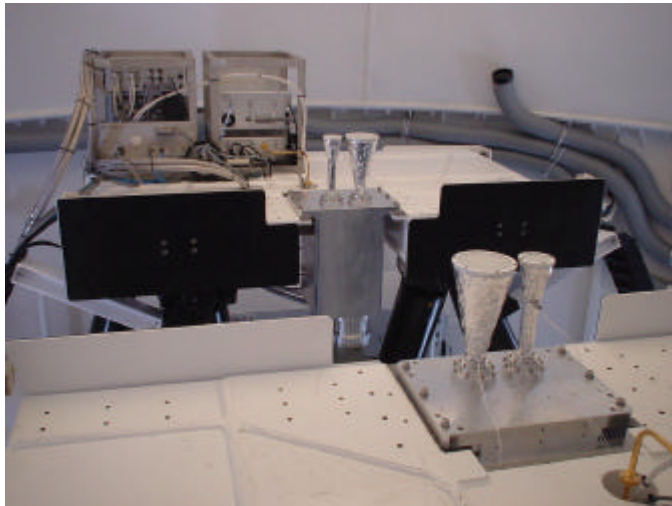


# Dual-beam receiving system



Dual-beam Stewart-mount  
platform

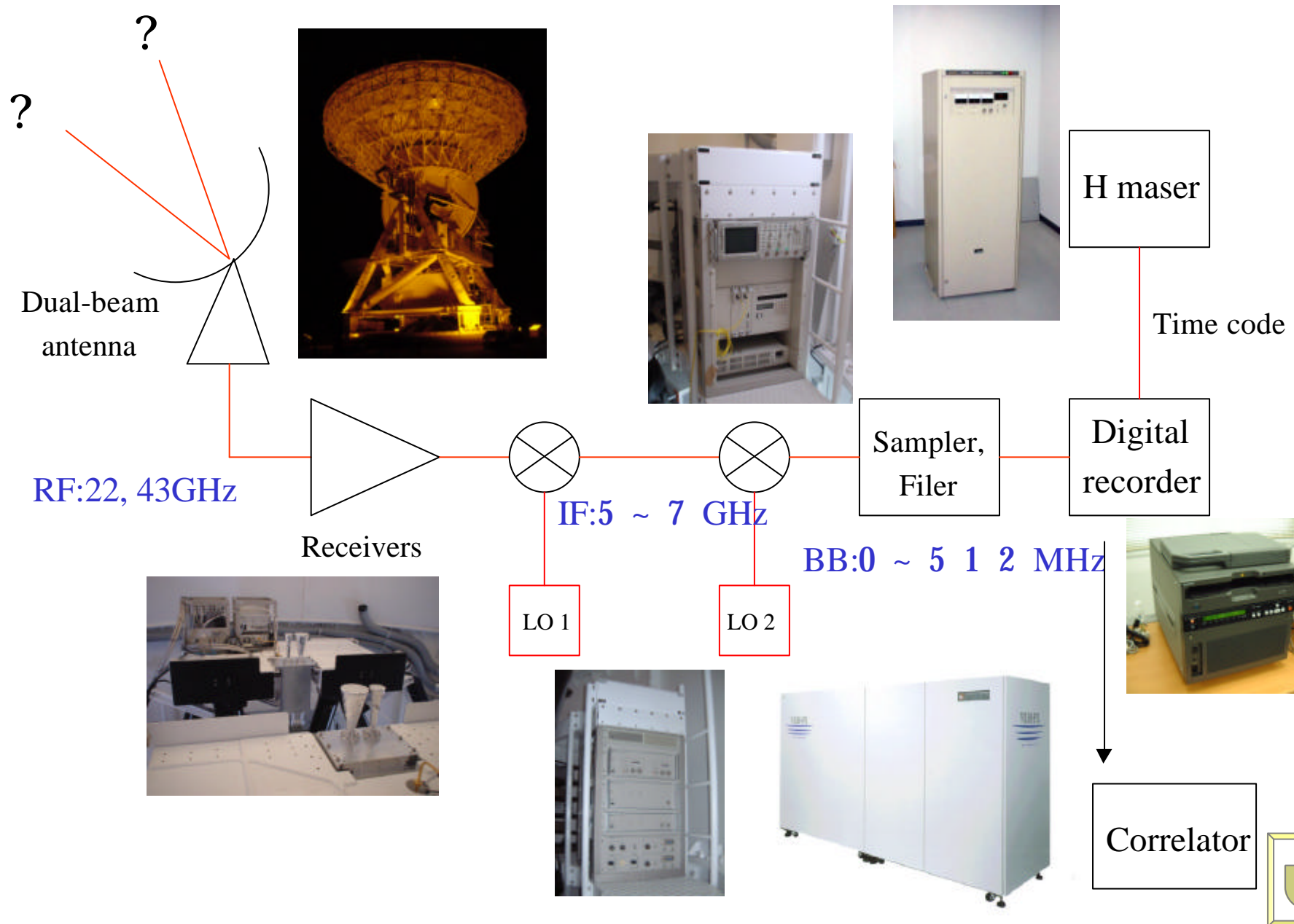
dual-beam receivers



(K & Q band receives)



# Schematic view of VERA system

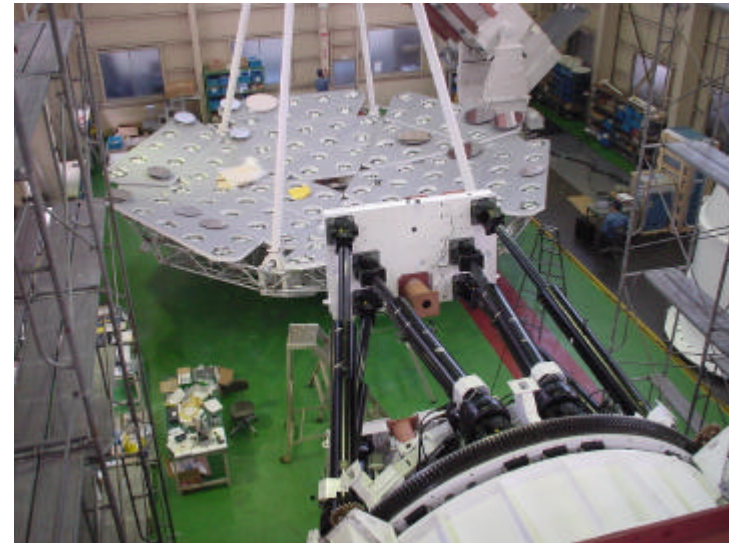
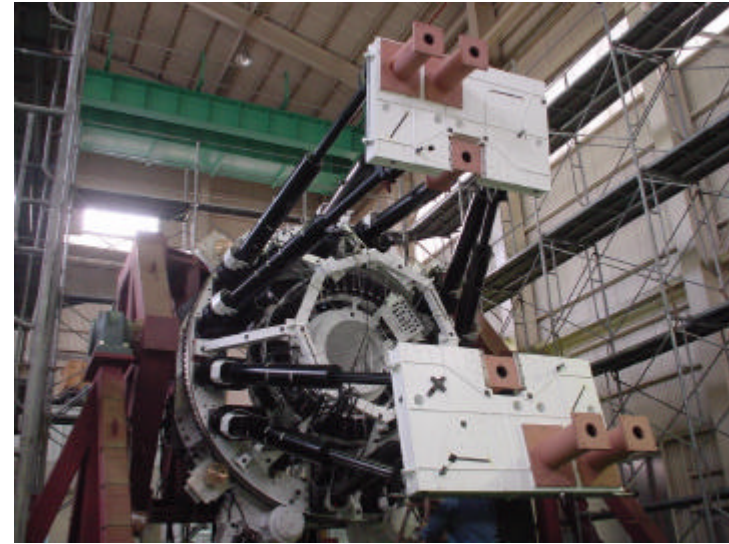




# Construction of Ishigaki Station

Dual-beam system under test experiment (Nov)

Current view of Ishigaki  
station (as of 13/Oct/01)



With CANGAROO telescope

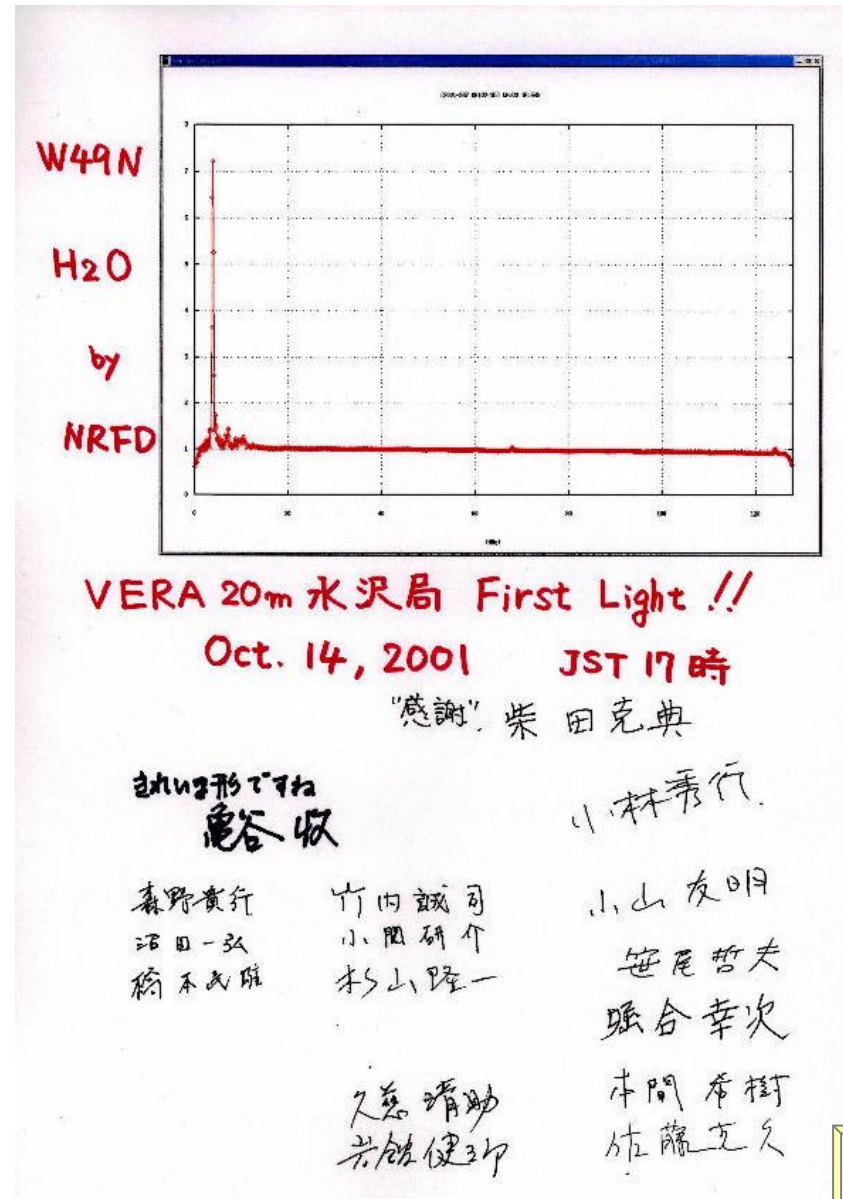


# First light at Mizusawa

First Spectrum of W49N  
taken on 14/Oct/2001



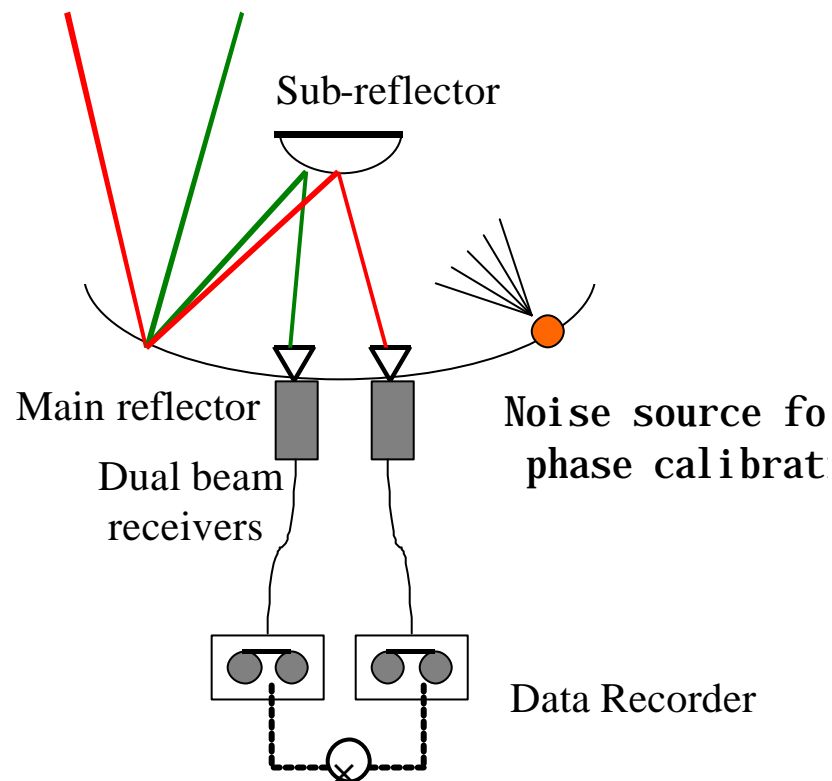
Mizusawa station





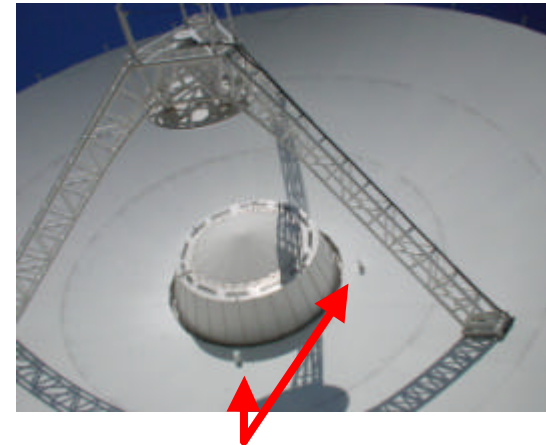
# First fringe of Phase-cal Noise source

Schematic view of  
Dual-beam phase-calibration

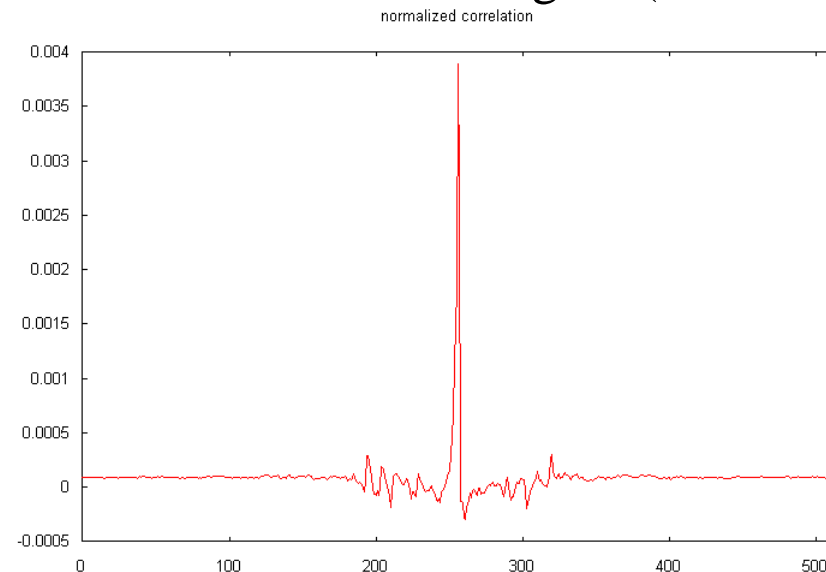


Real-time Correlator for phase calibration

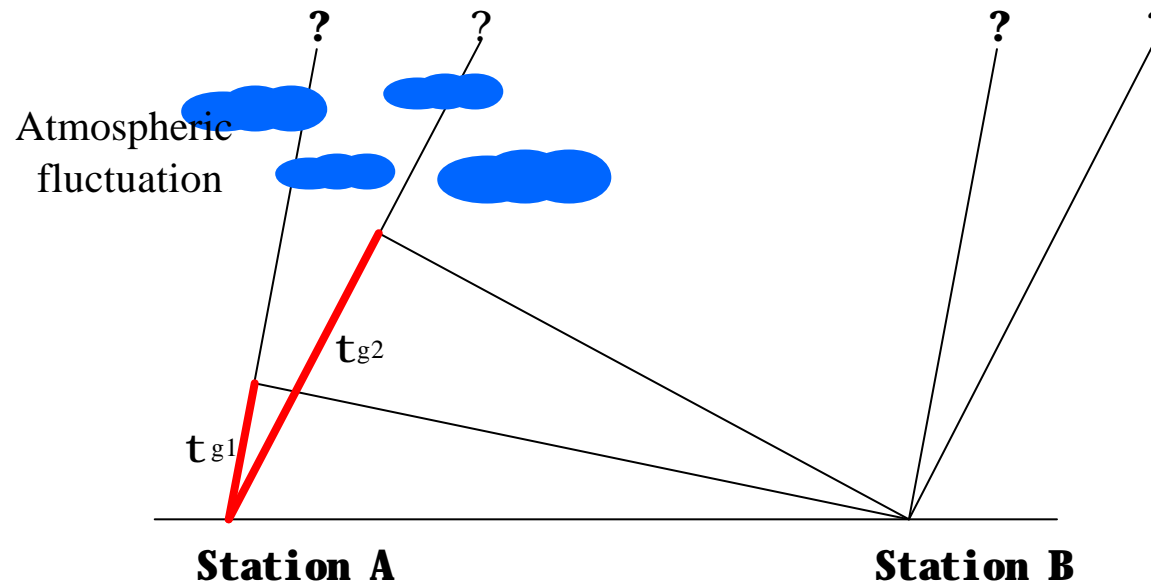
Noise source on main reflector



The first dual-beam fringe (Oct.2001)



# Position measurement with VERA



relative delay accuracy: 0.1 mm (3 degree @ 22GHz)

maximum baseline length: 2300 km

Positional accuracy : **10 micro arcsec**

(=0.1 mm/ 2300 km)