



한국우주전파관측망  
KOREAN VLBI NETWORK · KASI



# KJCC System and Correlation Status



**Se-Jin Oh**

Duk-Gyoo Roh, Jae-Hwam Yeom, ChungSik Oh,  
Dong-Kyu Jung, Hwan Ju-Yeon, Youngjoo Yun, Hyo-Ryoung  
Kim, A. Miyazaki, N. Kawaguchi, H. Kobayashi, K. Shibata, T.  
Oyama

and staff of Correlator team of KASI/NAOJ



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# KJCC System status



## ❖ VCS(VLBI Correlation Subsystem)

- VCS supports various correlation mode such as W1, C1, C2, C3, C4 and C5.

## ❖ OCTDISK

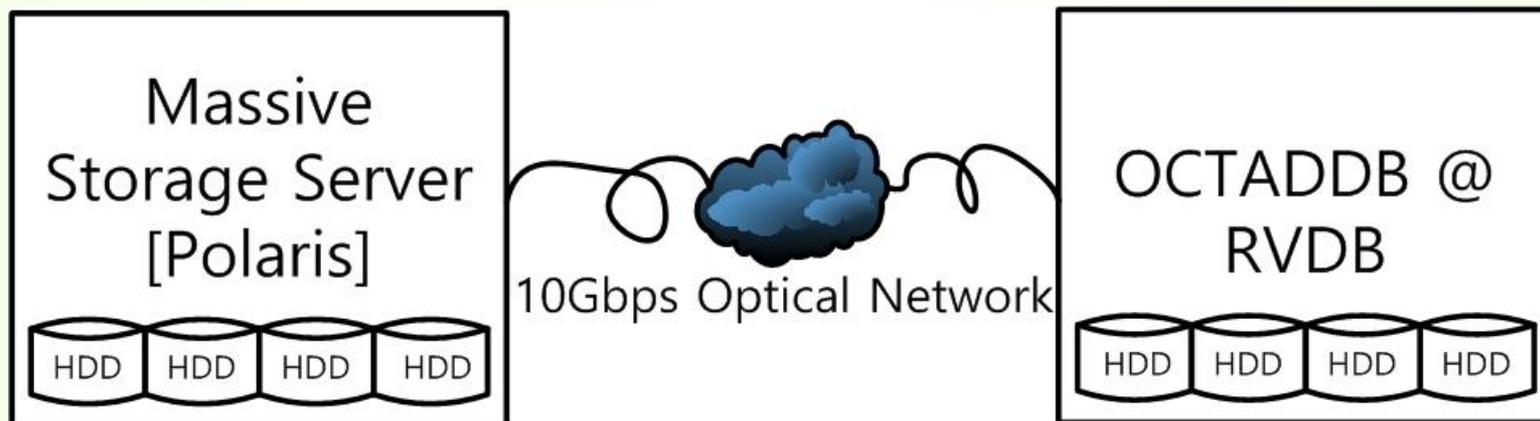
- In RVDB system, 3 OCTADDB system were changed to OCTADISK so as to support VERA(JVN) wideband observation.
- 3 OCTADISKS arrived at KJCC, and playing back and corr was started.



# Software development



- ❖ **VDIF Copy software** : Between massive storage and OCTADDB, VSI obs data is directly possible to copy.
- ❖ **octa\_control\_rec/octa\_control\_play**

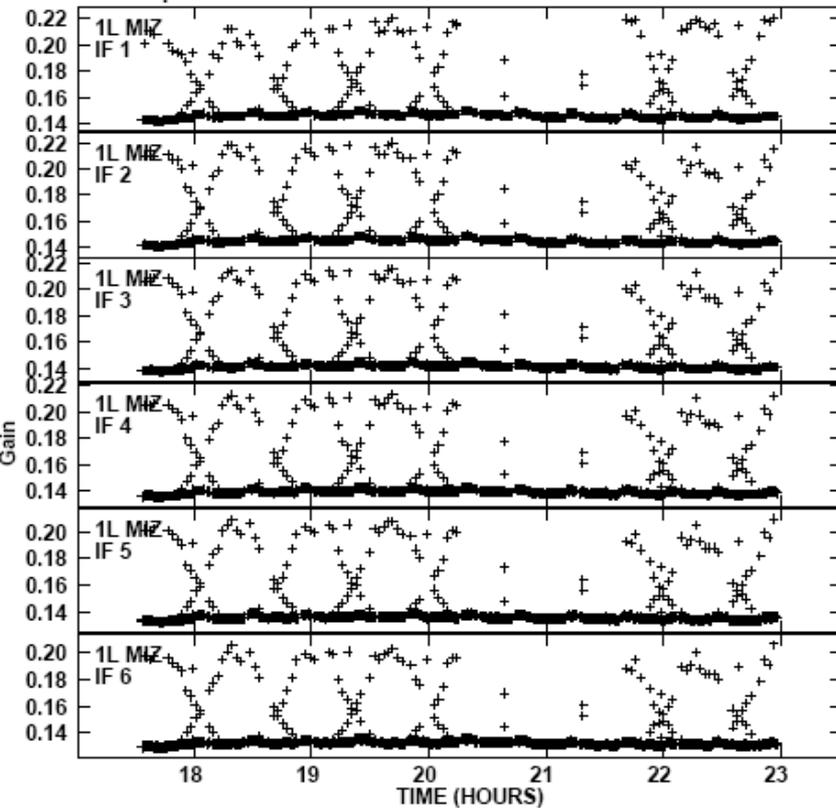


# ARP packet attack

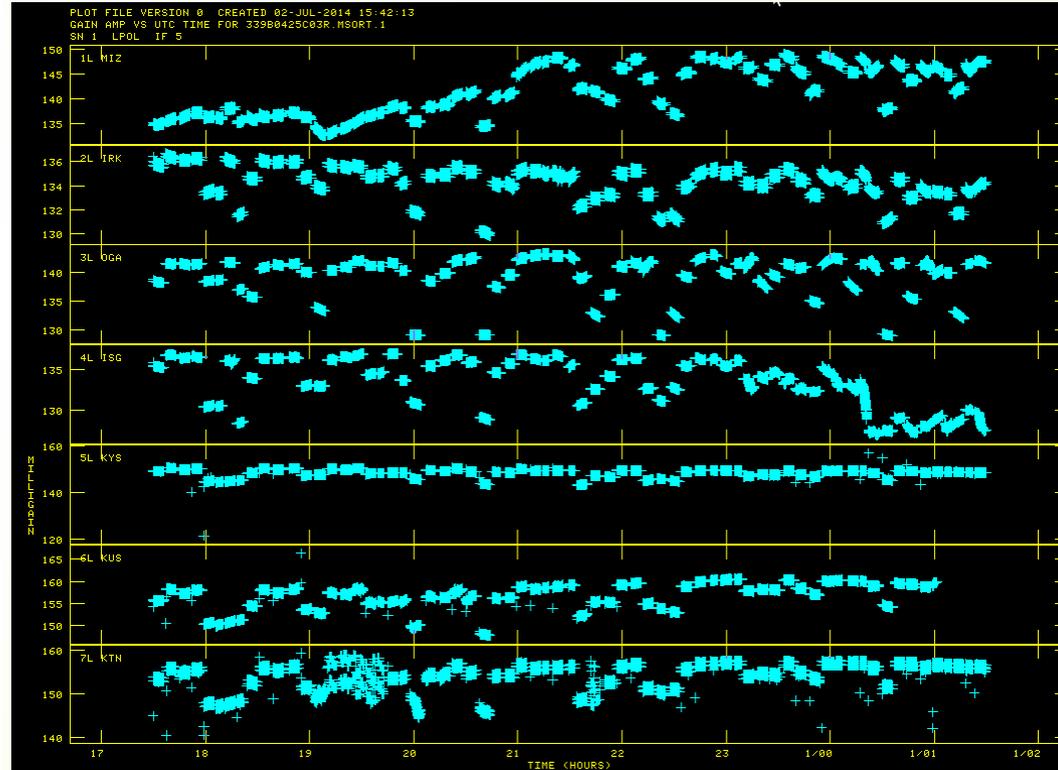


Before

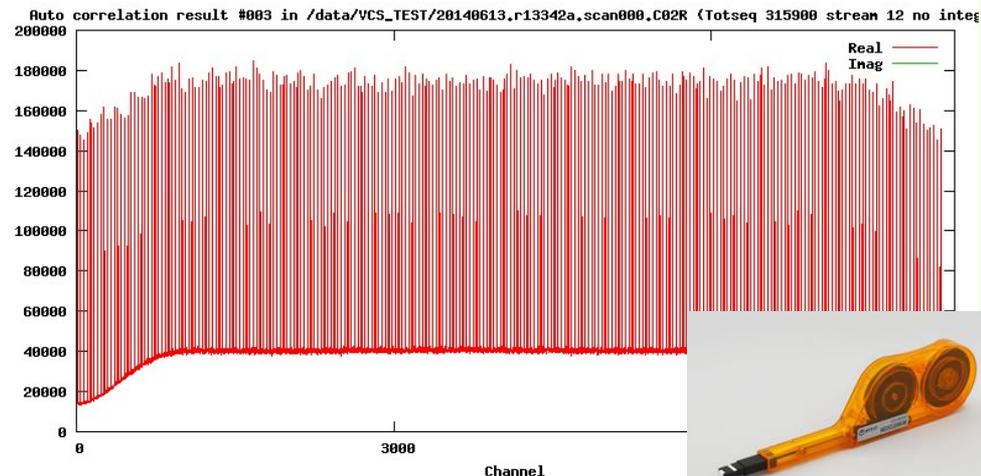
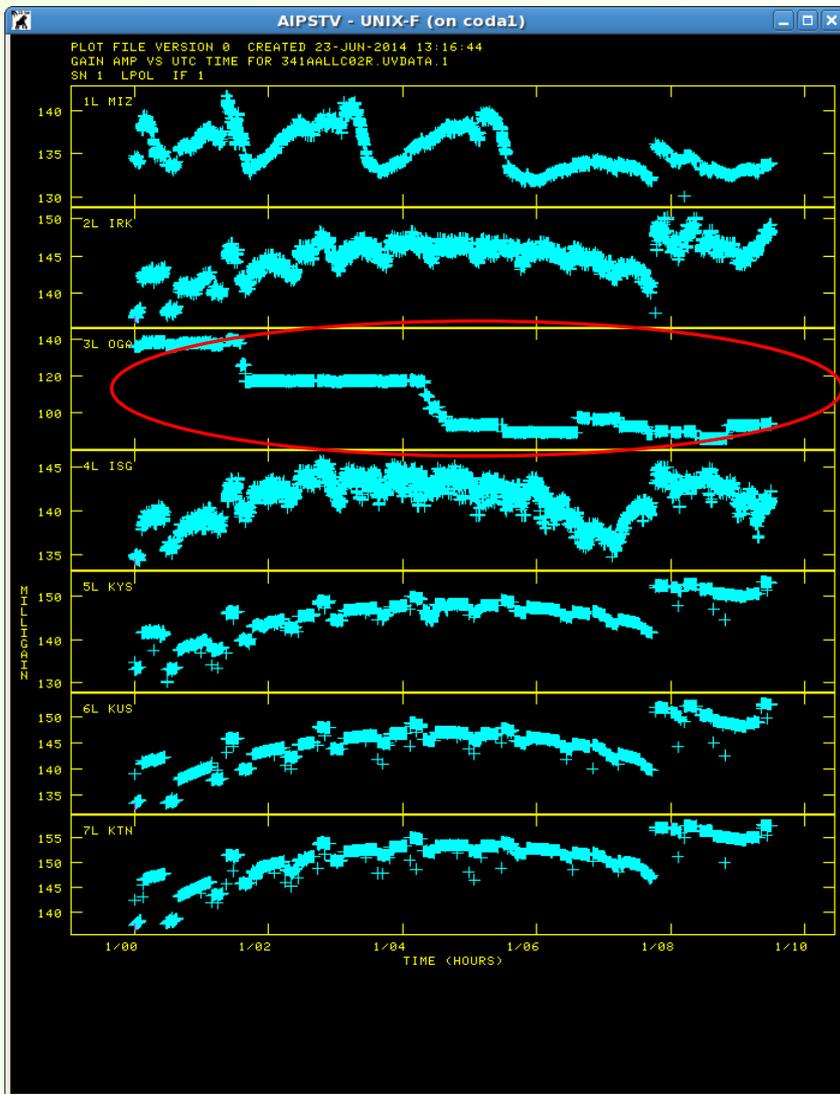
Plot file version 9 created 07-JAN-2014 16:37:50  
Gain amp vs UTC time for R13086\_K2.UVDATA.1  
SN 13 Lpol IF 1 - 6



After



# Step-like Gain Amp after ACCOR



- ❖ In optical connection between AU and CAB, dust is the reason.
- ❖ After cleaning dust, the above problem was disappeared.

# KJCC correlation status



## ❖ KJCC web

- <http://kjcc.kasi.re.kr/doc/corr-status.html>

## ❖ FITS delivery

- DQA will announce to PI by e-mail to download the FITS file with its link.

## ❖ FITS regulations

- <http://kjcc.kasi.re.kr/doc/fits-dist.html>
- **KJCC would like to receive PI's response within 2 weeks after FITS file downloading. At least if there is no response within 4 weeks, KJCC determined that PI is regarded as his response as "Success" for FITS file(2013.09)**

# Correlation Status



Season	Observation	Corr Finished	Remain Corr	FITS release
2014B	6(in Sep)	-	-	
2014A	57 (1 cancelled, 1 test)	24	31	13
2013B	27	27	0	27

2014A	Total	Disk pack used	Tape used	Remark
VERA	55	29	26	
KVN		55		

## ❖ 2013B, 2014A season

- 84 obs.
- 51 corr. finished

# Popularity by operator



- ❖ **1. Normal observation with strong fringe finder**
- ❖ **2. Frequency switching**
- ❖ **3. Fast switching**
  - Fast switching obs is OK, but start/end time in obs log had been superposed because of the different telescope slewing speed.
  - If you want to observe this mode, please consider start/end time between scans.
- ❖ **4. A/B-beam, Multi-Frequency Obs**
- ❖ **5. Sub-array**
  - Observation is just 1 time, but correlation should be performed many times. It takes many hours to correlate them.

# KJCC Request(1)



- ❖ **Short cover report of your observation introduction**
  - Discuss it DM to improve operation effectively
- ❖ **How to correlate your observation**
  - Our operator had some experience recently , but sometimes PI conducted new observation without any introduction. In that case, correlation time is more needed by understanding the observation why it was conducted that way.
- ❖ **Difference between VEX and Obs log**
  - Sometimes we found that VEX and log have different information such as frequency setting or LSB/USB or RHCP/LHCP etc.



## ❖ Support various obs mode

- W1 : 512MHz BW 1stream
  - C1 : 256 MHz BW 1stream
  - C2 : 128 MHz BW 2streams
  - C3 : 64 MHz BW 4streams
  - C4 : 32 MHz BW 8streams
  - C5 : 16 MHz BW 16streams : Normal
- ❖ → KJCC suggest to PI to do long obs by using W1~C4 mode, which will be used to do your research and to give confirmation of KJCC performance with risk-shared.

# How to correlate rapidly



- ❖ **Stable operation of VCS**
- ❖ **OCTADISK pack**
- ❖ **Simple observation mode w/ strong fringe finder**
  - No Fast switching
  - No sub-array
- ❖ **VEX and log consistence**
- ❖ **Short correlation request**
- ❖ **Quick response after analyzing FITS within 1 month**



## ❖ Advantage

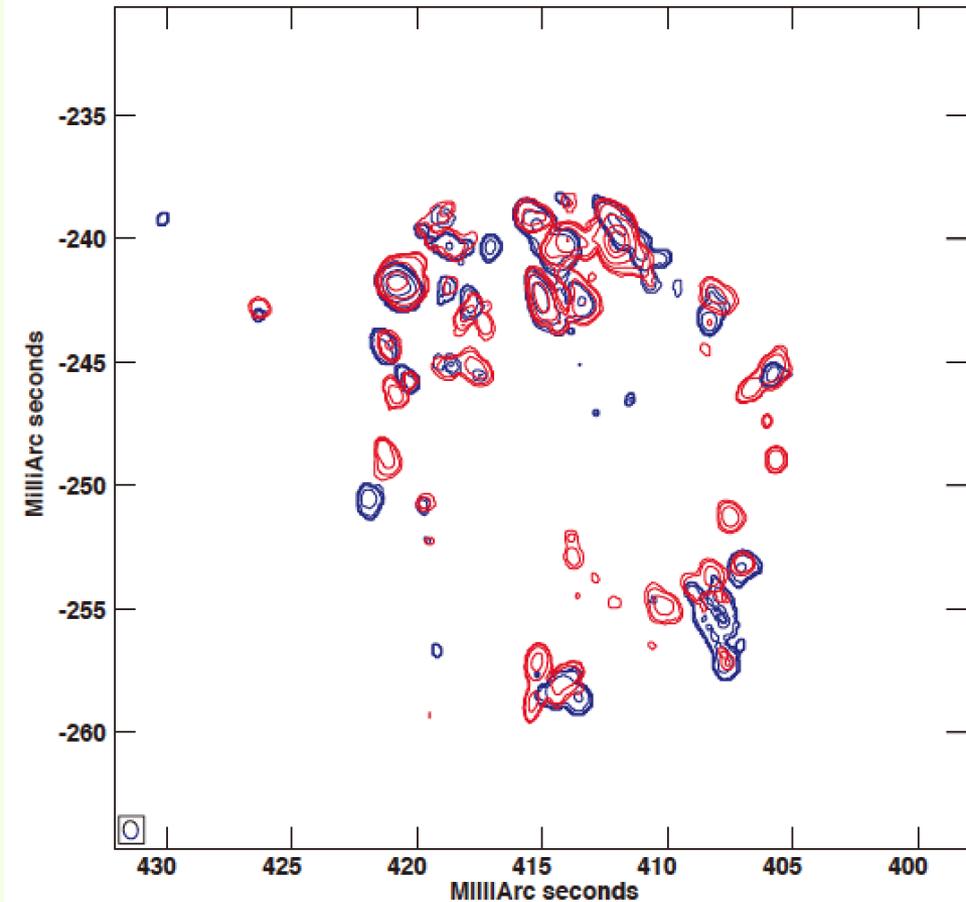
- Copy work is not needed
- Fast correlation is possible
- PI will quickly receive FITS file

## ❖ Disadvantage

- Point of view by operator, strong pressure from PI(AOC)
- Busy to correlate
- Fast release of disk-media

# SiO masers around BX Cam

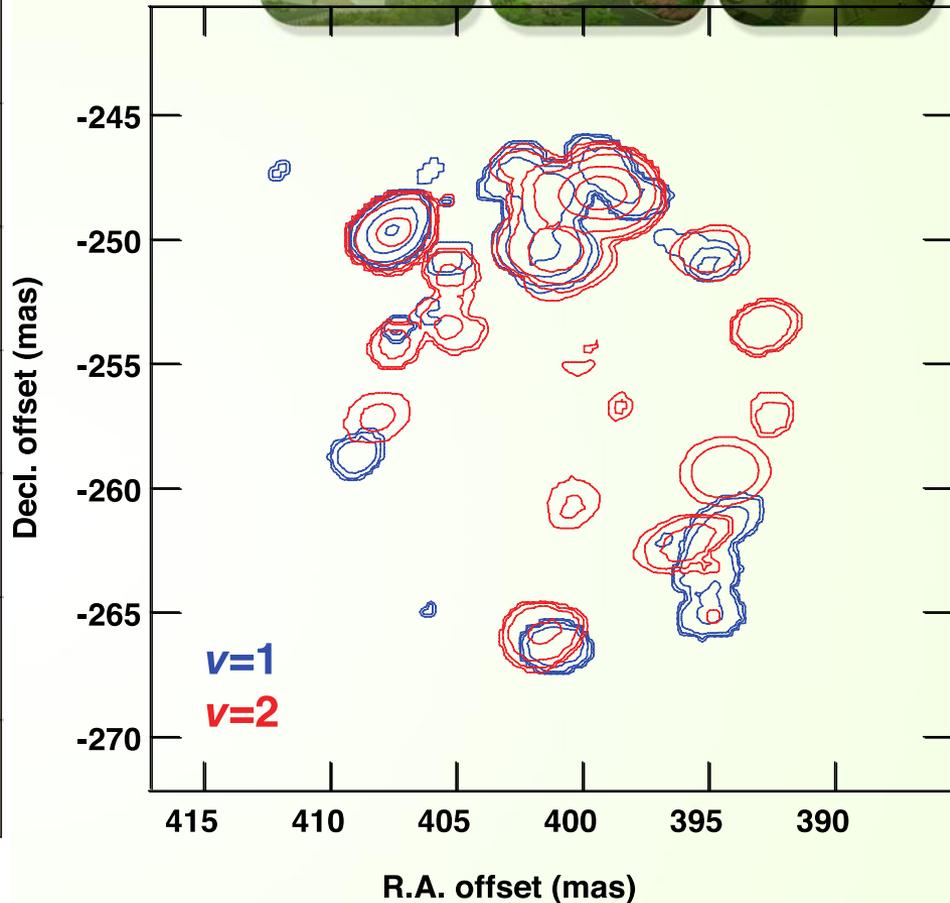
r13340b



v=1 peak flux = 5.3678E+01 JY channel /BEAM  
Levs = 5.400E-01 \* (1, 2.600, 6.600, 16.80, 43, 69)

v=2 peak flux = 8.7355E+01 JY channel /BEAM  
Levs = 8.800E-01 \* (1, 2.600, 6.600, 16.80, 43, 69)

KaVA/KJCC



KVN/DiFX

By Evolved Star Group(H.Imai et al.)

# KJCC operation



## ❖ People in KJCC :

- Roh(Man), Oh, Yeom(HW/SW), Yun(SW), OhCS, Miyazaki(DQA), Kim(DiFX), Jung, Hwang(Op)

## ❖ New operator arrived : Hwang Ju-yeon from August



Jung Dong-Kyu

Hwang Ju-Yeon

# Future Work



- ❖ **Archive system upgrade is needed**
- ❖ **Polarization correlation**
  - Test correlation will be also performed soon.