

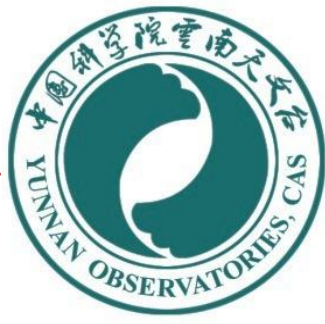


Status on Kunming station

Longfei Hao

2018.3.19 Shanghai





Outline

- ◆ Background
- ◆ EVN Observations
- ◆ Outlook

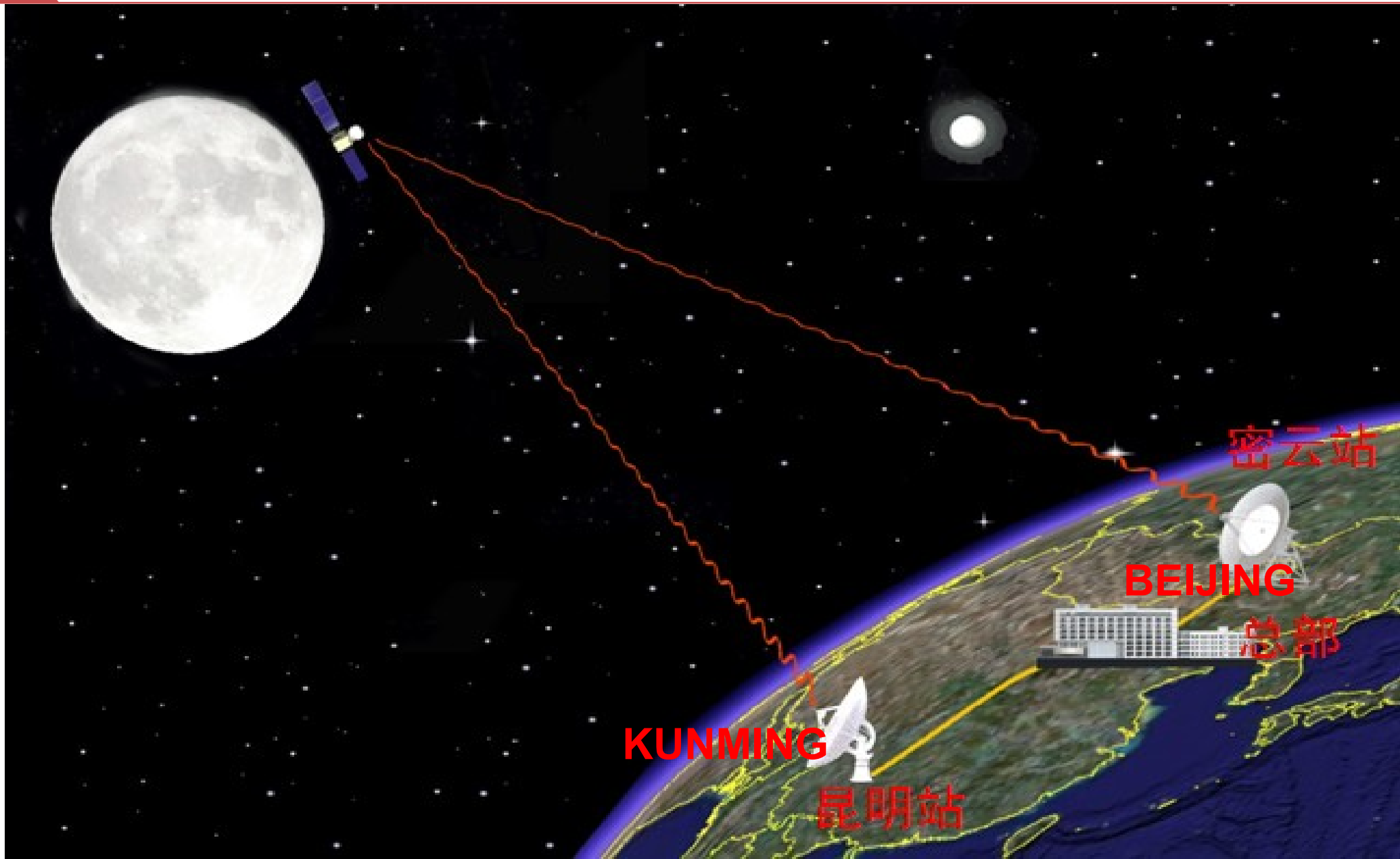
Construction: Basement construction and antenna mounting (Aug. 2005—May 2006) designed by CETC Institute No. 39



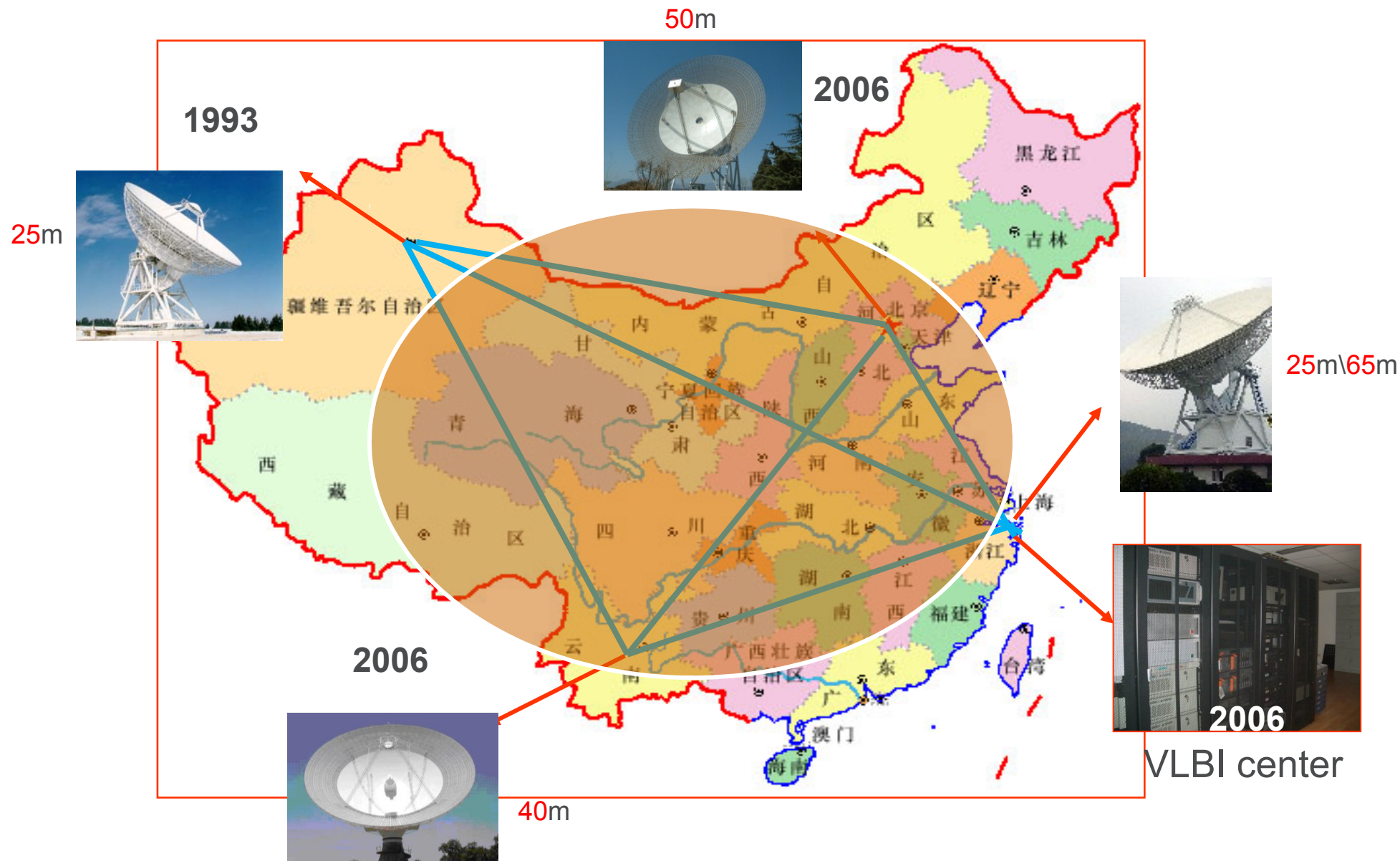
Location: Kunming station in Google

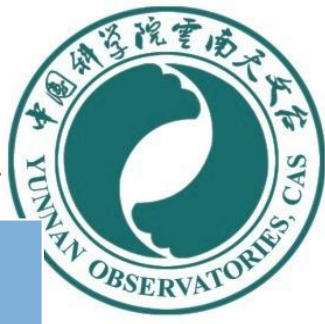


Data down-linking with Miyun 50m



Purpose : CVN for Lunar Project



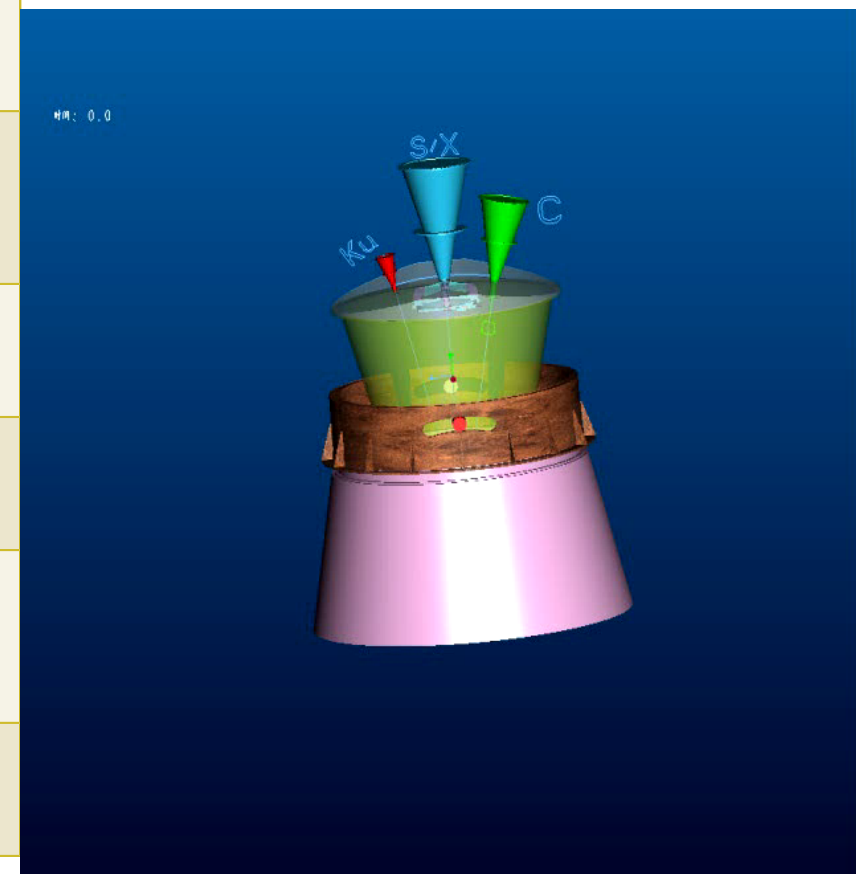


key specifications

Prime dish Diameter	40m
Mounting	Azimuth-Zenith
Surface(<26m)	Solid aluminum panel
Surface(26-40m)	Stainless steel mesh
Shape accuracy(<26m)	~0.5 mm (rms)
Shape accuracy (26-40m)	~2.5 mm(rms)
Pointing accuracy	~28''
Optics	Cassegrain; $f/D=0.35$

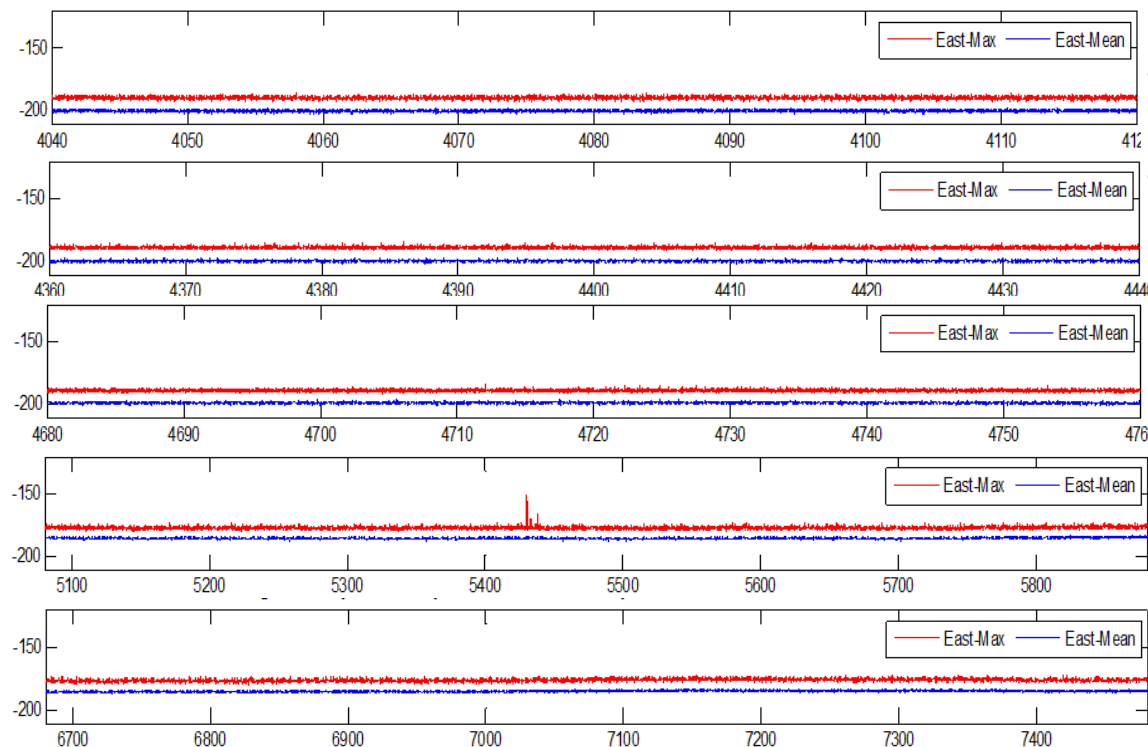
working bands

	S	X	C(new)
Frequency range	2150~2450M Hz	8200~9000M Hz	4000~8000M Hz
Polarization	L&R	L&R	L&R
LO	2000MHz	8100MHz	optional
Tsys	50K(Room TEMP.)	50K(Cooled)	35K
Efficiency	~60%	~45%	~50%

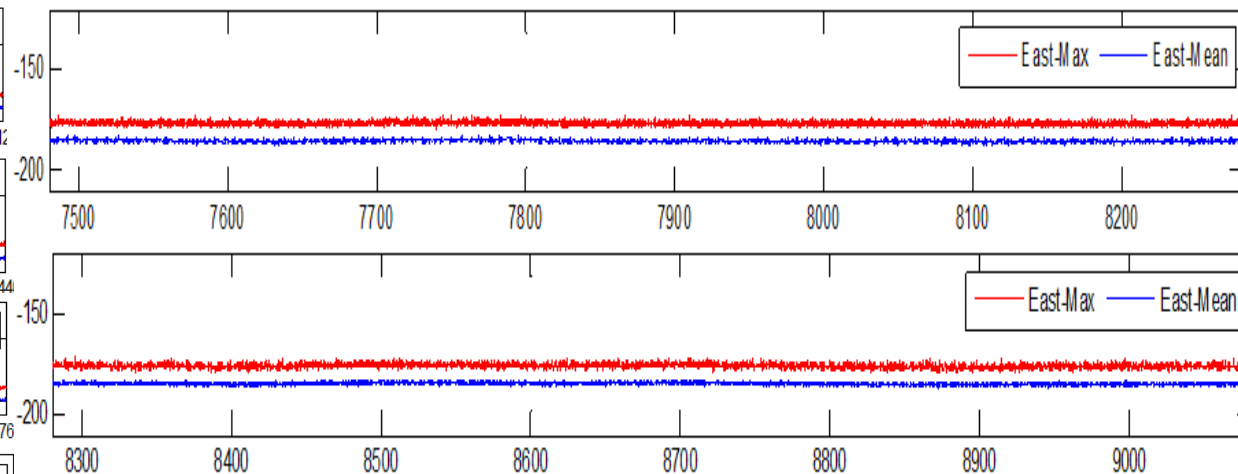


Radio Environment

(4040—7500 MHz)



(7500—9100 MHz)



Good !

VLBI terminal

- ◆ **Chinese Data Acquisition System (CDAS, SHAO)**
 - ✓ Input frequency range: 0-512 MHz
 - ✓ 32 Channels (including USB and LSB)
 - ✓ Output: 0.125, 0.25, 0.5, ..., 32 MHz
 - ✓ Mark 5B+ recorder
 - ✓ Support 2 Gbps observations
- ◆ **Time and Frequency System**
 - ✓ 1pps counter
 - ✓ weather instrument
 - ✓ GPS
 - ✓ 5MHz & 1pps (H-maser)



New instruments

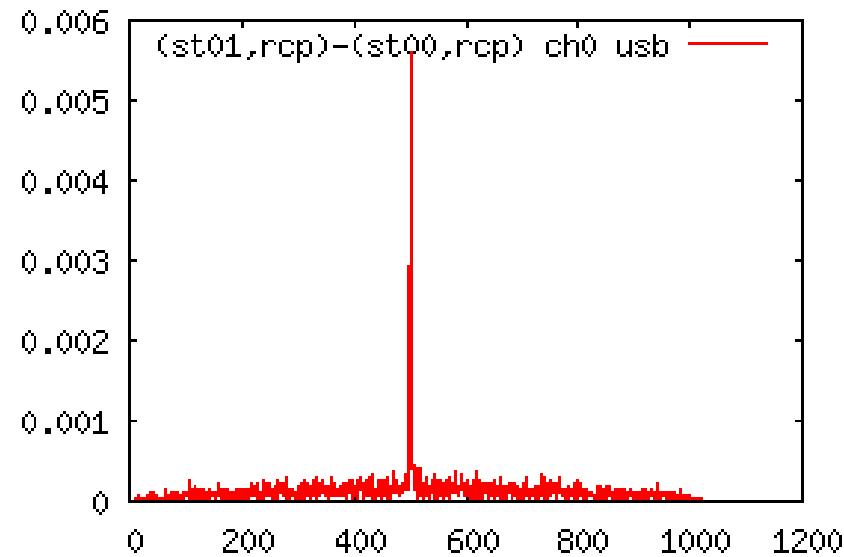
- ◆ **H-Maser**
- ✓ **From USA**
- ✓ **Distribution system**



- ◆ **DBBC2 + Mark6**

EVN observation: First fringes to EVN(S/X)

On 17 Jun 2009, the Kunming telescope participated in the EVN network monitoring experiment N09SX1 for the first time. We successfully detected fringes to the other EVN telescopes. The image shows the fringe on the baseline Kunming -- Effelsberg (7728 km).

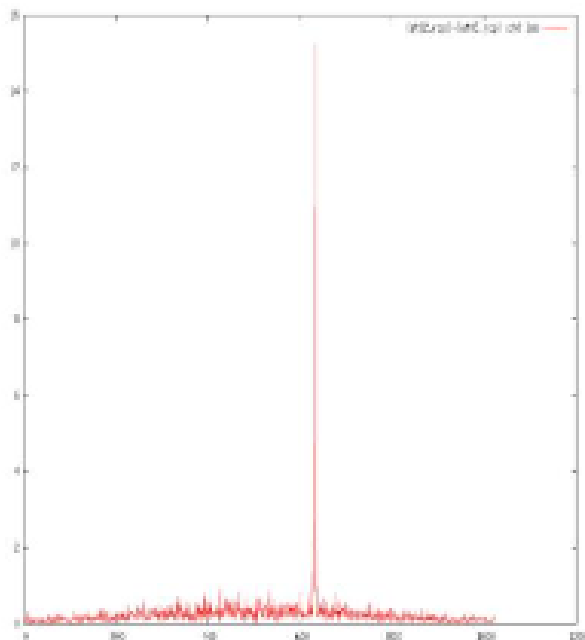


**New 7 baselines were established,
there are 5 baselines are over 7000km!**

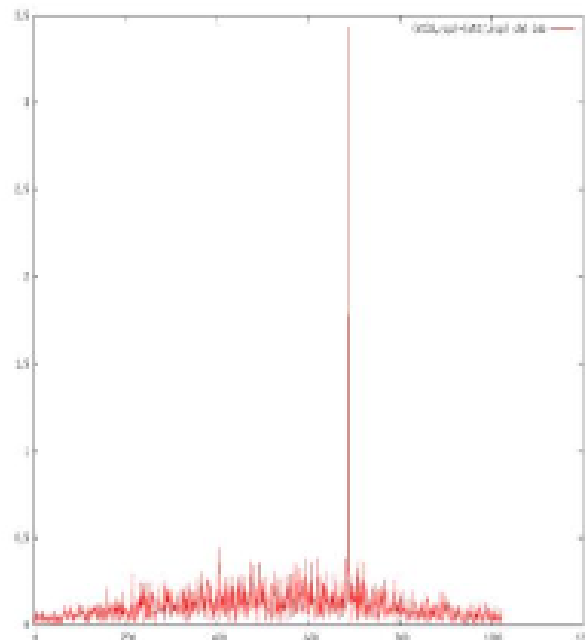
Ongoing : C band fringe test with EVN(2016)



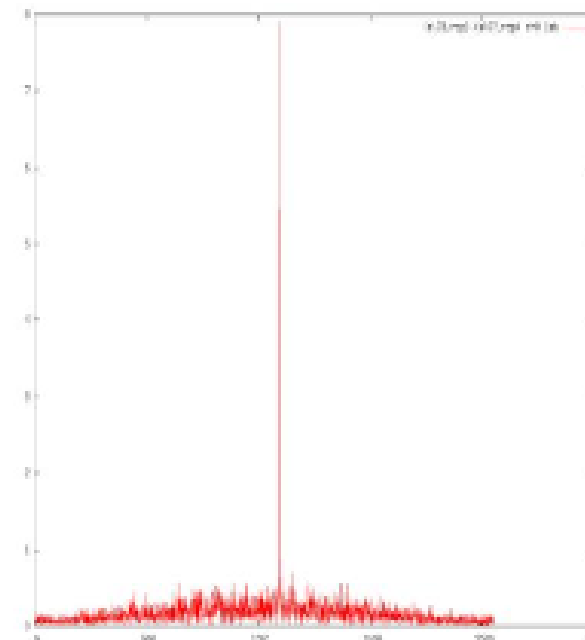
- ◆ Oct 20~21 2016 N16M3&N16C3



5cm



6cm/1Gbps



6cm/2Gbps

Ongoing : Sessions of EVN(2017)



| PART 2 6 cm |

N17C2	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	10.37	0.69	Eu	158	1200	(07/06)	-1500	(07/06)	6cm	NME	512	Mbps
CL17C2	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	---	0.00	0.00	Eu	158	1600	(07/06)	-2000	(07/06)	6cm	FS	CAL	
GV022B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	276.48	11.06	Eu	158	2100	(07/06)	-0900	(08/06)	+VLBA	+Y27		
ER045B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	34.56	2.30	Eu	159	1400	(08/06)	-1900	(08/06)	2nd	epoch		
EJ019A	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	13.82	0.92	Eu	160	0100	(09/06)	-0300	(09/06)	J2326			
EP103D	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	[Ar]	----	---	EVN	179.25	11.06	Eu	160	0530	(09/06)	-1730	(09/06)	-			
																				2.03	Ar	160	1500	(09/06)	-1730	(09/06)	Ar				
EB060C	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	55.30	3.69	Eu	160	2200	(09/06)	-0600	(10/06)	-			
EJ019B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	13.82	0.92	Eu	161	0700	(10/06)	-0900	(10/06)	J0437			
EJ019C	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	13.82	0.92	Eu	161	1300	(10/06)	-1500	(10/06)	J1036			
EM129	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	MER	EVN	110.59	7.37	Eu	161	2130	(10/06)	-0530	(11/06)	+e-MERLIN			
EJ019D	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	13.82	0.92	Eu	162	0630	(11/06)	-0830	(11/06)	J0424			
EG098B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	69.12	4.62	Eu	163	0300	(12/06)	-0800	(12/06)	-			
EP104B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	----	---	EVN	13.82	0.92	Eu	163	2200	(12/06)	-0000	(13/06)	-			
EG094C	---	---	---	---	---	---	T6	Ur	---	---	---	---	Bd	---	---	---	---	---	EVN	2.77	0.92	Eu	164	0500	(13/06)	-1305	(13/06)	+RA	J1354-206		

Ongoing : Sessions of EVN(2018)



◆ 2018.2-2018.3

| PART 2 5 cm |

N18M1	Jb2	Wb1	Ef	Mc	Nt	On85	T6	--	Tr	Ys	--	--	--	Hh	Ir	Sr	--	--	--	--	Km	EVN	2.07	0.17	Eu	058	1300(27/02)	-1600(27/02)	5cm NME + FTP-FT	128 Mbps
CL18M1	Jb2	Wb1	Ef	Mc	Nt	On85	T6	--	Tr	Ys	--	--	--	Hh	Ir	--	--	--	--	--	Km	---	0.00	0.00	Eu	058	1700(27/02)	-2100(27/02)	5cm FS CAL	
ES085A	Jb2	Wb1	Ef	Mc	Nt	On85	T6	--	Tr	Ys	--	--	--	Hh	Ir	--	--	--	--	--	Km	EVN	6.34	0.58	Eu	059	0300(28/02)	-1300(28/02)	-	
ES085B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	--	Tr	Ys	--	--	--	Hh	Ir	--	--	--	--	--	Km	EVN	6.34	0.58	Eu	060	0300(01/03)	-1300(01/03)	-	
EM117M	Jb2	Wb1	Ef	Mc	Nt	On85	--	--	Tr	Ys	--	--	--	Hh	Ir	--	--	--	--	--	--	EVN	5.18	0.52	Eu	061	0230(02/03)	-1130(02/03)	G12.68	
EM117N	Jb2	Wb1	Ef	Mc	Nt	On85	--	--	Tr	Ys	--	--	--	Hh	Ir	--	--	--	--	--	--	EVN	5.18	0.52	Eu	062	0230(03/03)	-1130(03/03)	G25.65	
ES089	Jb2	Wb1	Ef	Mc	Nt	On85	T6	--	Tr	Ys	--	--	--	Hh	Ir	--	--	--	--	--	Km	EVN	5.07	0.46	Eu	063	0400(04/03)	-1200(04/03)	-	

| PART 3 6 cm |

N18C1	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	EVN	10.37	0.69	Eu	064	1300(05/03)	-1600(05/03)	6cm NME + FTP-FT	512 Mbps
CL18C1	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	---	0.00	0.00	Eu	064	1700(05/03)	-2100(05/03)	6cm FS CAL	
EK038A	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	EVN	27.65	2.30	Eu	065	0800(06/03)	-1200(06/03)	-	
EM131C	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	EVN	124.42	8.29	Eu	066	0300(07/03)	-1200(07/03)	J2007+4029	
EP106C	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	EVN	110.59	7.37	Eu	067	1030(08/03)	-1830(08/03)	-	
EK038B	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	Sv	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	EVN	27.65	1.38	Eu	067	2130(08/03)	-0130(09/03)	-	
3G084A	Jb2	Wb1	Ef	Mc	Nt	On85	T6	Ur	Tr	Ys	--	Zc	Bd	Hh	Ir	--	--	--	--	--	Km	EVN	245.58	11.06	Eu	070	1700(11/03)	-0500(12/03)	-	
																							0.00	Au	070	1400(11/03)	-2100(11/03)	LBA		
																							5.99	Km	070	1730(11/03)	-0000(12/03)	Kunming		
																							7.83	US	070	0400(12/03)	-1230(12/03)	VLBA/Y27		
																							6.45	US	070	0400(12/03)	-1100(12/03)	GBT		

Ongoing : Sessions of EVN



Vex file -- Integration time: 2s -- Start of the integration: 2018y064d15h45m00s0ms

N18C1	Auto correlations																				Cross correlations													
	Bd	Cm	Da	De	Ef	Hh	Ib	Jb	Km	Kn	Mc	Nk	Nt	O8	Sv	T6	Ta	Tr	Ur	Wb	Ys	Zc	Bd-Ef	Cm-Ef	Da-Ef	De-Ef	Ef-Hh	Ef-Ib	Ef-Jb	Ef-Km	Ef-Kn	Ef-Mc	Ef-Nk	Ef-Nt
4966.49MHz, LSB, Rcp-Rcp	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	157.1	442 A	185.8	55.56	22.56	248.1	141.5	110.9	254.1	246.3	74.93	506
4966.49MHz, LSB, Rcp-Lcp	Cross hands																				6.291	54.69	6.612	5.458	5.804	98.18	7.246	6.929	14.56	5.564	13.98	41.		
4966.49MHz, LSB, Lcp-Lcp	9	9	9	9	9	9	9	5	9	9	5	9	9	9	9	9	5	9	5	9	9	230.4	405.4	200.3	145.9	41.88	541.6	295.7	136.8	349.5	301.2	130.6	819	
4966.49MHz, LSB, Lcp-Rcp	Cross hands																				7.569	13.91	18.68	7.955	5.215	91.68	16.5 A	11.57	39.65	9.388	22.77	62.		
4966.49MHz, USB, Rcp-Rcp	1	11897552	11885584	11897408	1	1	1	1	1	11902624	1	1	1	1	1	1	1	1	1	1	1	163.3	714.7	323.4	108.1	19.2 A	382.7	129.7	112.3	412.3	251.7	68.39	512	
4966.49MHz, USB, Rcp-Lcp	Cross hands																				7.674	49.79	10.85	7.506	4.856	84.68	9.972	11.87	33.78	6.101	7.076	48.		
4966.49MHz, USB, Lcp-Lcp	9	0	0	0	9	9	9	9	5	0	9	5	9	9	9	9	5	9	5	9	9	239.9	799.9	335.5	231.7	41.81	466.7	272.2	132.9	528.1	191.5	110.5	691	
4966.49MHz, USB, Lcp-Rcp	Cross hands																				7.421	38.68	25.6 A	4.451	6.136	123.1	20.37	10.52	60.8	28%	OK/s	OK/s	50.	



Ongoing : Become an associate member?



From: "Rene Vermeulen" <rvermeulen@astron.nl>

Sent Time: 2017-05-19 04:20:22 (Friday)

To: "lzx@ynao.ac.cn" <lzx@ynao.ac.cn>

Cc: "Antonis Polatidis" <polatidis@astron.nl>, "wm@ynao.ac.cn" <wm@ynao.ac.cn>, haolongfei <haolongfei@ynao.ac.cn>, "Rene Vermeulen email werk" <rvermeulen@astron.nl>

Subject: Re: [EVN-CBD] Kunming participation in VLBI observing with the EVN

Dear Zhixuan,

Thank you very much for your comprehensive reply to my email - I received it on 24 April, and was very happy to read it.

At the EVN CBD meeting on May 9+10, we discussed the very encouraging developments at Kunming for participation in EVN observations, and your answers to the questions I had posed. The EVN CBD concluded that we should indeed, following your recommendation, announce to the proposers of EVN projects the availability of Kunming on a best efforts basis, at the bands for which it has receivers. We noted that this does not imply any formal or legal obligation on either side, as it is a best efforts basis. It means that there will be consultation by EVN staff with you in advance of every observing session, to determine actual ability to participate. This, however, is still a much-appreciated way to involve your telescope. Analysing the situation, we find that the position of Kunming is best described as an affiliation to the EVN, which, again, comes without obligation, as opposed to an associated membership. The EVN CBD hopes that associate membership could be the next level of engagement to aspire to, after we have gotten into the habit of participation via affiliation for some time.

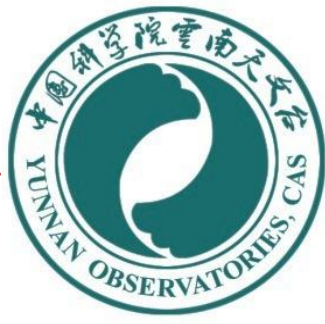
Issuing the call for proposals was actually urgent, as the deadline is 1 June. The EVN-PC Chair circulated the call on the day after the EVN CBD meeting. I point out the formulation in it: "The Kunming 40 m telescope is an affiliated EVN station situated on Phoenix Mountain, about 10 km east of the city of Kunming, China. The telescope may be requested on a best efforts basis for EVN disk recording observations at 13, 6, 5 and 3.6 cm wavelengths."

Once again, I thank you for your engagement, and I am sure this will be the start of a mutually beneficial and exciting connection between Kunming and the EVN.

Best regards,

René Vermeulen
Chair, EVN Consortium Board of Directors

Director International LOFAR Telescope (ILT)
and ASTRON European Radio Facilities Office



outlook

1.Thanks for the support from the foreign and Chinese VLBI colleagues.

2.Kunming telescope has taken part in some VLBI observations with EVN , CVN , EAVN and IVS. We realize that the international VLBI cooperation is very important to promote our research and technique capabilities.

Thanks!

Any comments please contact:
haolongfei@ynao.ac.cn

