Max-Planck-Institut
für Radioastronomie

MAX-PLANCK-GESELLSCHAFT

GMVA+KVN test observations at 86 GHz in May 2012

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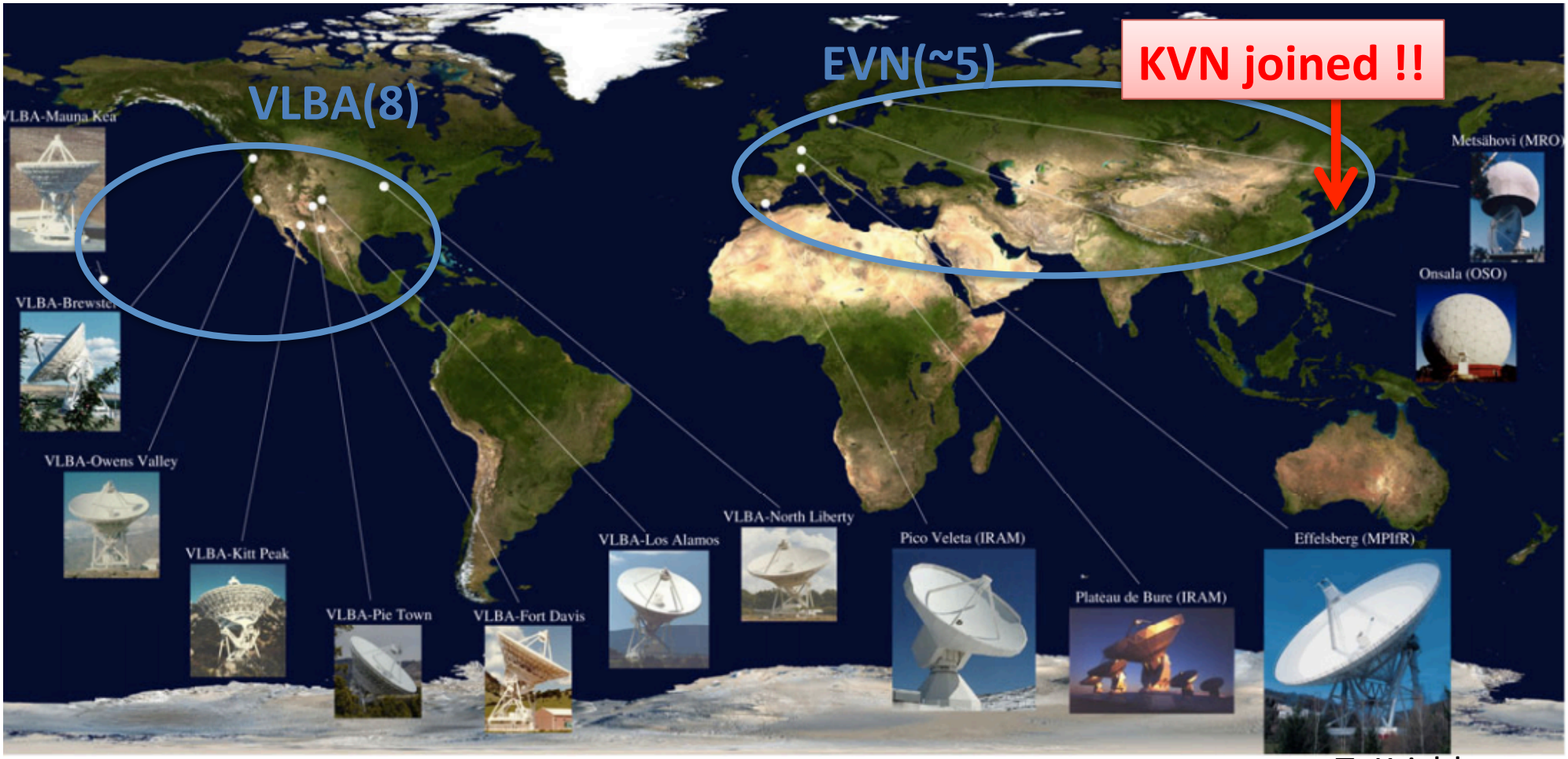
Effelsberg 100m telescope ©MPIfR

GMVA :
Global Millimeter VLBI Array



T. Krichbaum+

The highest angular resolution imaging interferometer ~40 uas at 86 GHz currently available as a common user facility so far.

Receiver performances at 86 GHz

Antenna	Antenna Diameter [m]	SEFD [Jy]	Recording rate
Effelsberg	80	1000	2Gbps
Plateau de Bure	34	500	Only 1Gbps
Pico Veleta	30	700	2Gbps
Onsala	20	5500	2Gbps
Yebes	40	1700	2Gbps
(Metsaehovi)	14	17500	2Gbps
VLBA8	25	2000	2Gbps
GBT(*)	100	170	2Gbps
KVN3(*)	21	~1500	Only 1Gbps

(*): Justifications for those antennas are needed in proposals
KVN3: Assuming Tsys~100 K, Ant. eff.~52%

ref.: GMVA web

GMVA+KVN TEST OBS: C121

GMVA+KVN test observations: C121

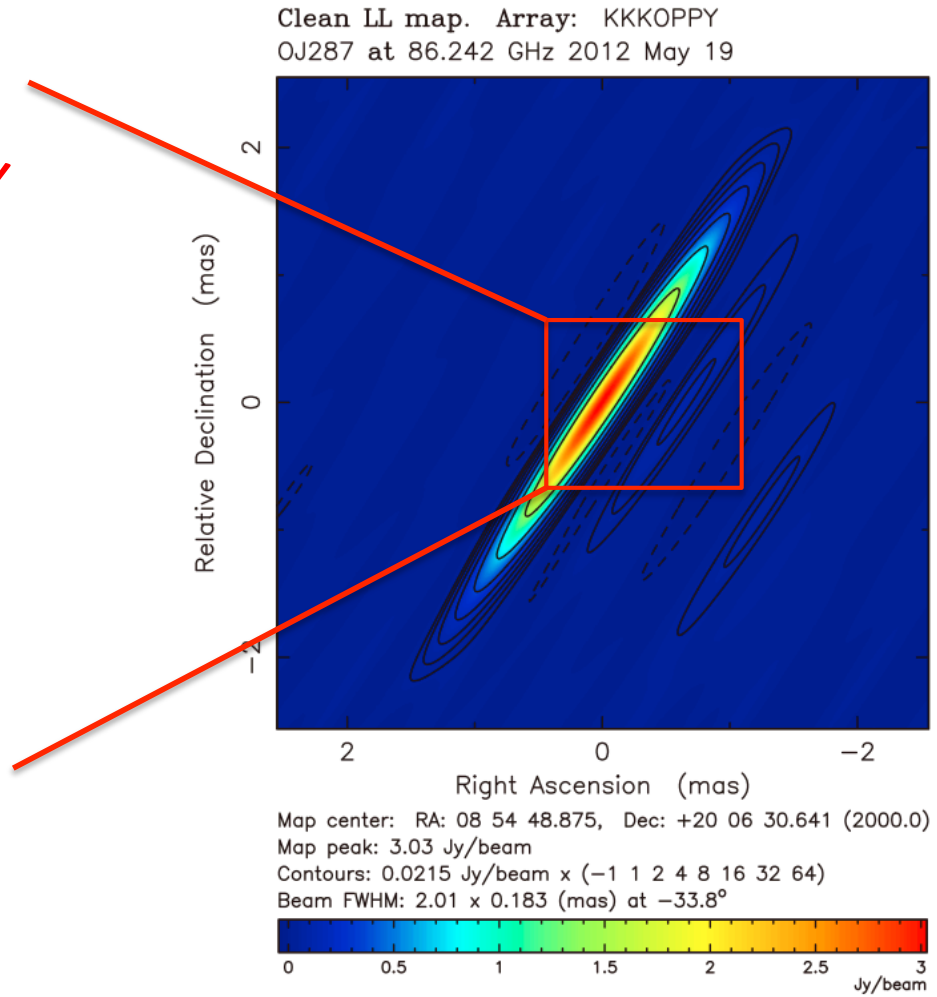
- Observation date: 18-20, May, 2012
- PI: A. Marscher (Boston Univ.)
  - KVN are partially included into his blazar monitoring with GMVA
- 16 stations in total : (Effelsberg), Plateau de Bure, Yebes, Onsala, Pico Veleta, (VLBAx8), KVNx3 (Tamna, Ulsan, Yonsei)
- IF settings: Dual pol., 16 MHz x 8 IFs
  - 16 MHz x 4 IFs are correlated for GMVA+KVN due to different frequency mode (all USB or mixed USB/LSB)
- Center freq. : 86.211 GHz

GMVA+KVN 86 GHz image of OJ287

PB+PV+ON+YS+KVN3

PB+PV+ON+YS

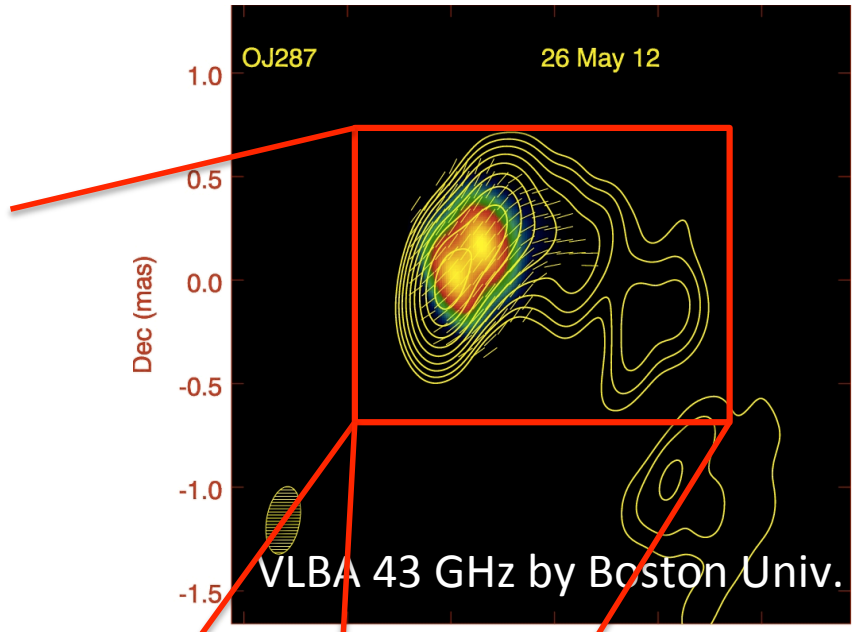
Preliminary

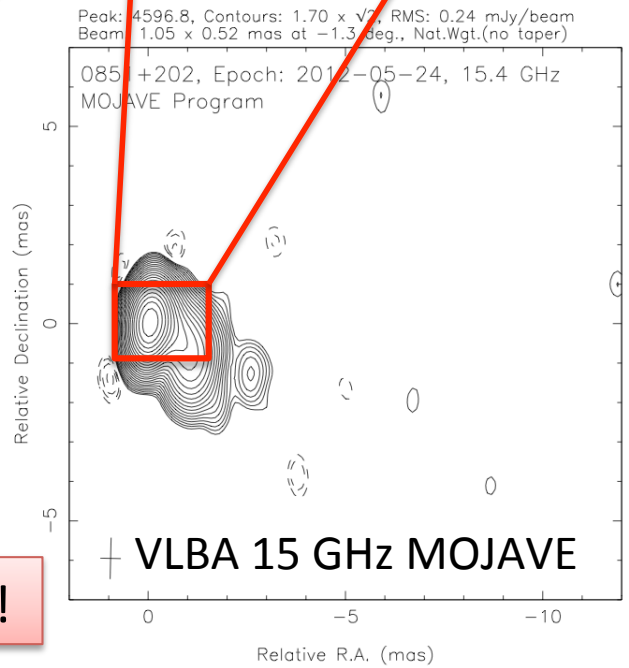


GMVA+KVN 86 GHz image of OJ287

PB+PV+ON+YS+KVN3

Preliminary





North-west inner jet is detected with GMVA+KVN!

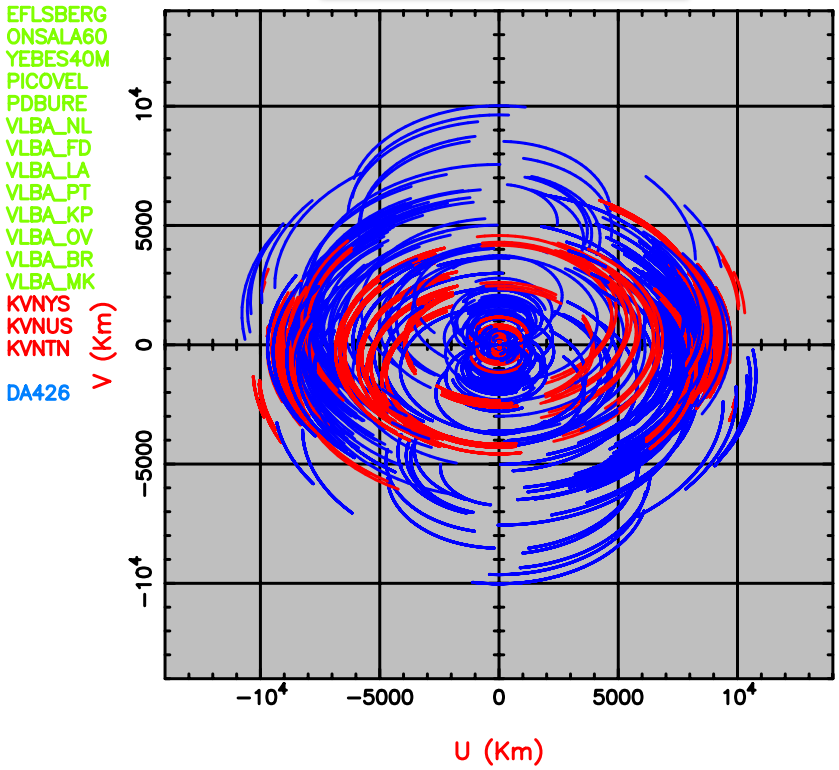
Advantages of GMVA+KVN

- The high resolution baselines when there is no mutual visibility between Europe and the USA will increase
- The increase of no. of long baselines will aid calibration
- It provides more short baseline spacings that are important in aiding the detection of extended structure

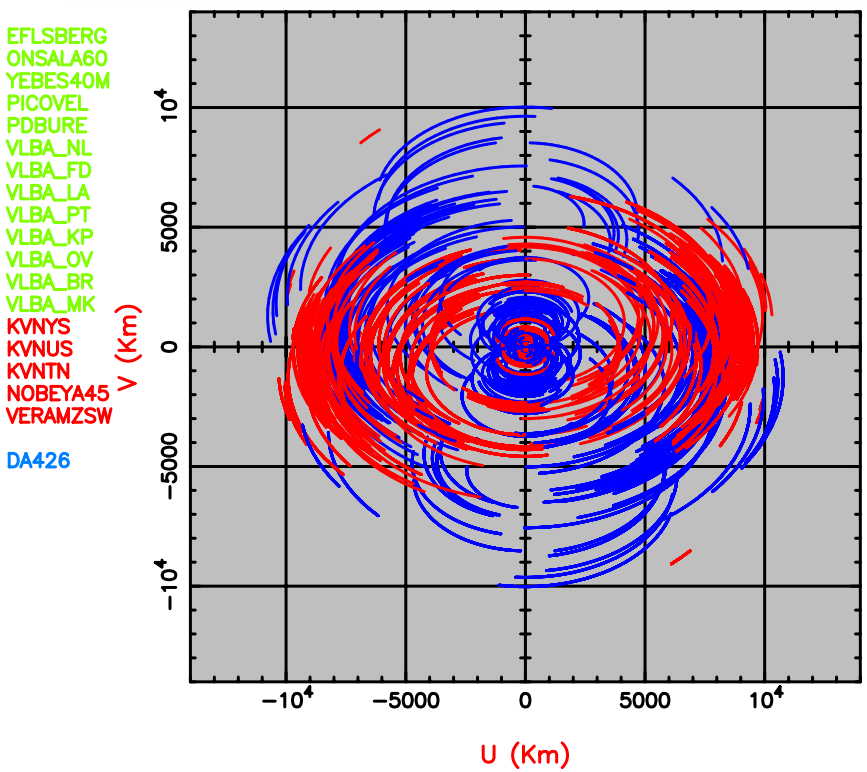
FUTURE PROSPECTS

Possible participants in future 86GHz VLBI -uvplot for Mrk 501-

GMVA+KVN

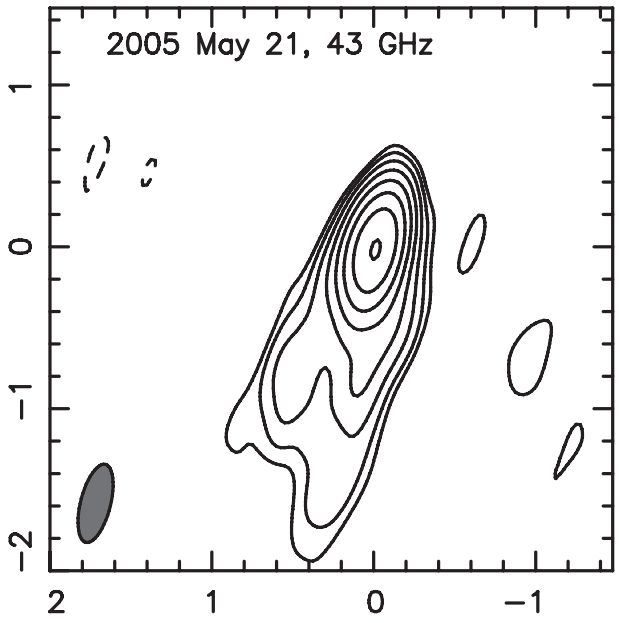


GMVA+KVN+NRO45+VERAMIZ

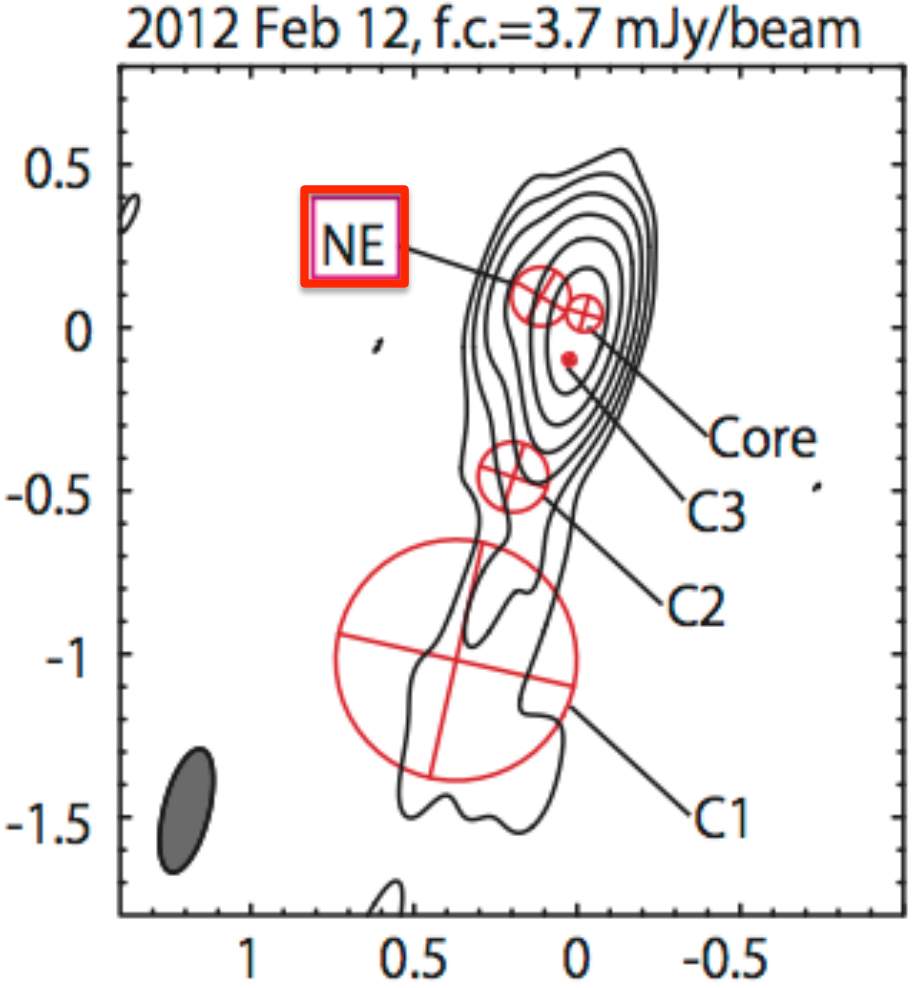


Inclusion of East Asian stations will increase no. of east-west baselines

Mrk 501 with VLBA 43 GHz



Piner+09



East-west baseline is important for resolving new component

Koyama+ A&A submitted