EAVNステータス
および
2017年春観測について

VLBI懇談会シンポジウム2016
2016年12月25-28日

秦和弘
国立天文台　水沢VLBI観測所


Tamna 21 m
Miyun 50 m
KASI/KJJVC
Sejong 22 m
Yonsei 21 m
Ulsan 21 m
Gifu 11 m
Usuda 64 m
Mizusawa 20 m
Nanshan 26 m
Takahagi 32 m
FAST500m
Tianma 65 m
Hitachi 32 m
TVN
800 km
Thailand
Bangkok
กรุงเทพมหานคร
1200 km
1000 km
Gulf of Thailand
KEDAH
Sheshan 25 m
SHAO/DiFX
Ishigakijima 20 m
Kashima 34 m
Iriki 20 m
Tsukuba 32 m
Ogasawara 20 m
6.7 GHz
8 GHz
22 GHz
43 GHz
The East-Asia
etwork
(Image Credit: Reto Stöc
atory)

EAVN Roadmap

輪島さんより
As of 2016/Dec

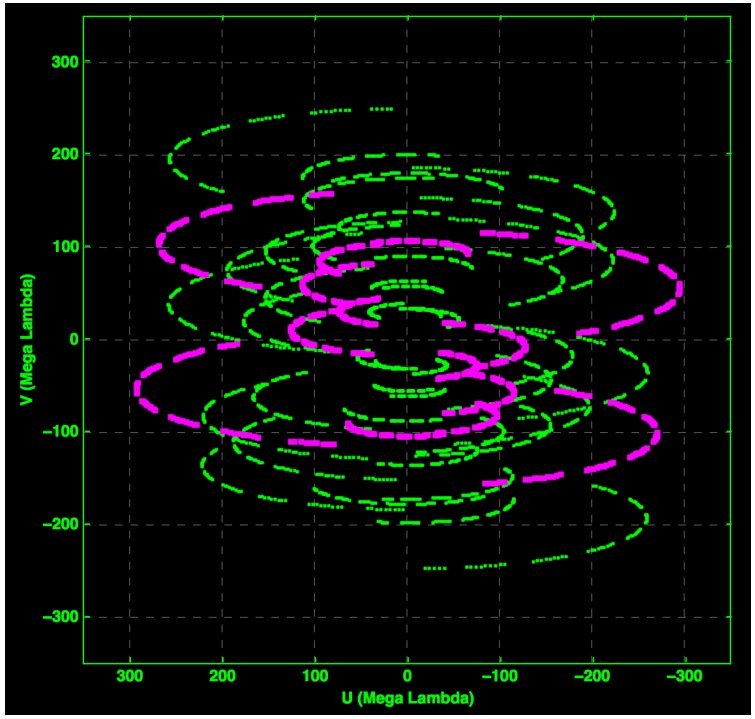
Year	2014	2015	2016	2017	2018
Actions	・5-time fringe tests done ・FTP data transfer test	・Further fringe tests ・Imaging tests, performance evaluation	・Imaging tests ・Science commissioning observations at 22/43 GHz ・Fringe tests at 6.7 GHz ・Launch of EAVN Science WG	・(Late 2017) Risk-shared open-use at 22/43 GHz ・Performance evaluation and science commissioning at 6.7 GHz	・(Late 2018) Risk-shared open-use at 6.7/22/43 GHz ・Performance evaluation for extending observation modes (2-pol., wide-band, etc.)
Freq.	8/22 GHz	8/22 GHz	6.7/22/43 GHz	6.7/22/43 GHz	6.7/22/43 GHz
Purposes	・Fringe detection from some telescopes in EAVN	・Evaluation of array performance and imaging capability	・Evaluation of array performance and array operation commissioning ・Performance evaluation at 6.7/22/43 GHz	・Initial scientific outputs from EAVN ・Confirmation of performance at 6.7 GHz	・Regular operation of EAVN ・Conformation of performance for various observation modes

2016年の主な活動実績

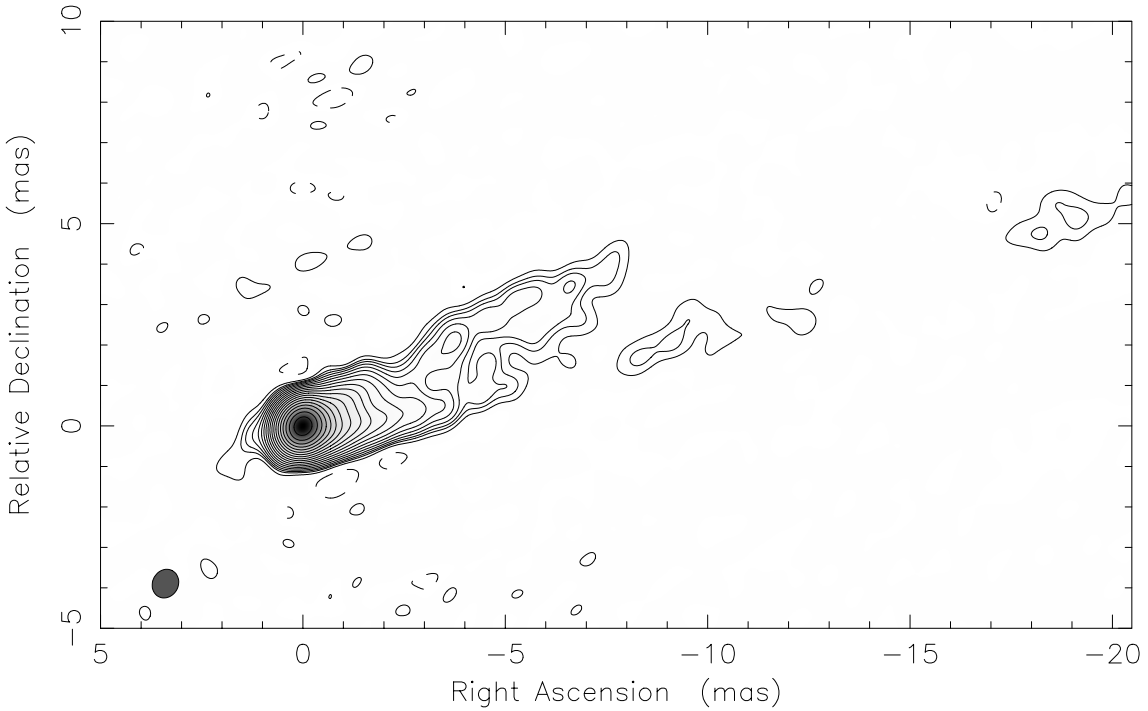
- EAVN Tiger Team (日韓中) 定例会議
  - Skype: 9回
  - F2F: 1回 (貴陽)
- EAVN試験観測の加速
  - 撮像試験(1Gbps) 計5回: 2回@Q, 2回@K, 1回@C
  - 2Gbpsフリンジ試験: 1回@Q
- EAVNワークショップ@貴陽
  - 中国キー局キー人物とのf2f会合
  - KaVA SWGからEAVN SWGへ

First (0th?) EAVN image?

KaVA+Tianma@43GHz, 1Gbps (M87)



赤 : Tianma基線

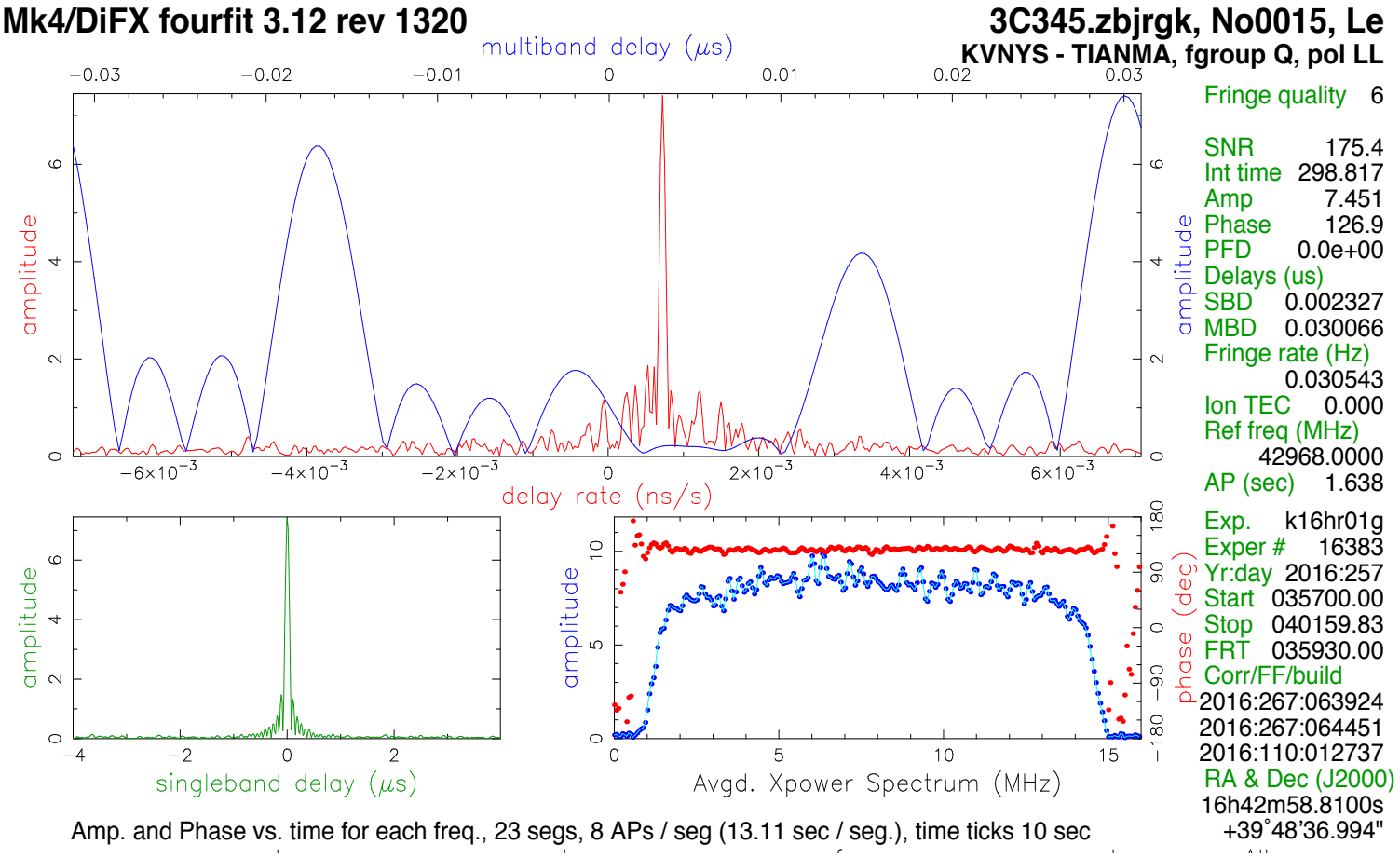


Map center: RA: 12 30 49.423, Dec: +12 23 28.044 (2000.0)
Map peak: 0.779 Jy/beam
Contours: 0.000834 Jy/beam x (−1 1 2 2.83 4 5.66
Contours: 8 11.3 16 22.7 32 45.3 64 90.5 128 181
Contours: 256 362 512 724)
Beam FWHM: 0.727 x 0.636 (mas) at −26.9°

- 2016/3月 (Tianma常温受信機)
- 2016/9月にTianma新冷却受信機を用いた再観測

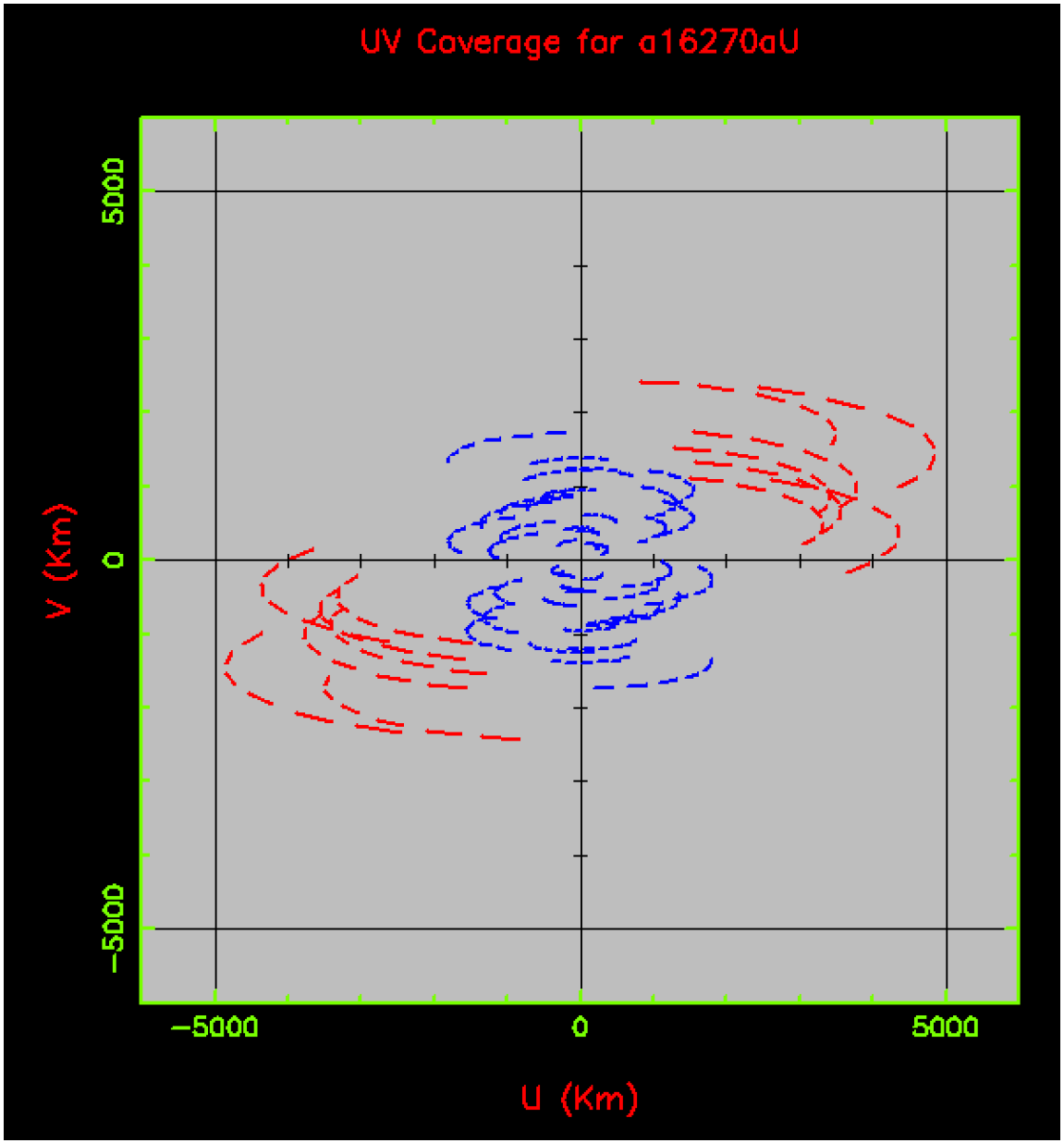
First EAVN fringes

“at 2Gbps”, “with Tianma new cooled receiver”



- 2016/Sep/13, Q-band, 3C345
- KVN, Tianma, (VERA)
- SNR~175@KVN-Tianma (~50@KVN-KVN)

First EAVN run with Nanshan(Ur)

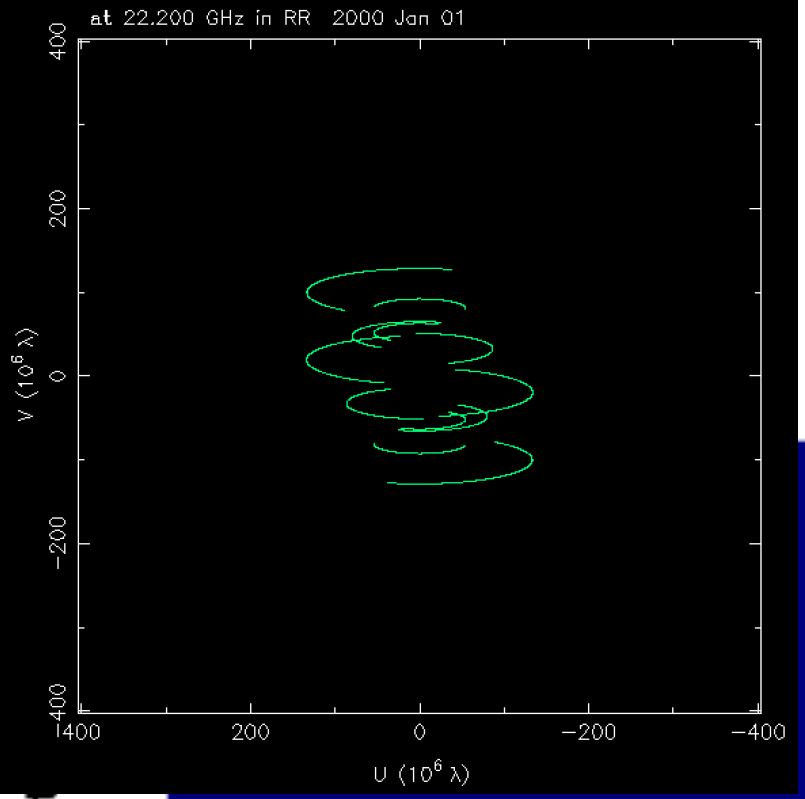


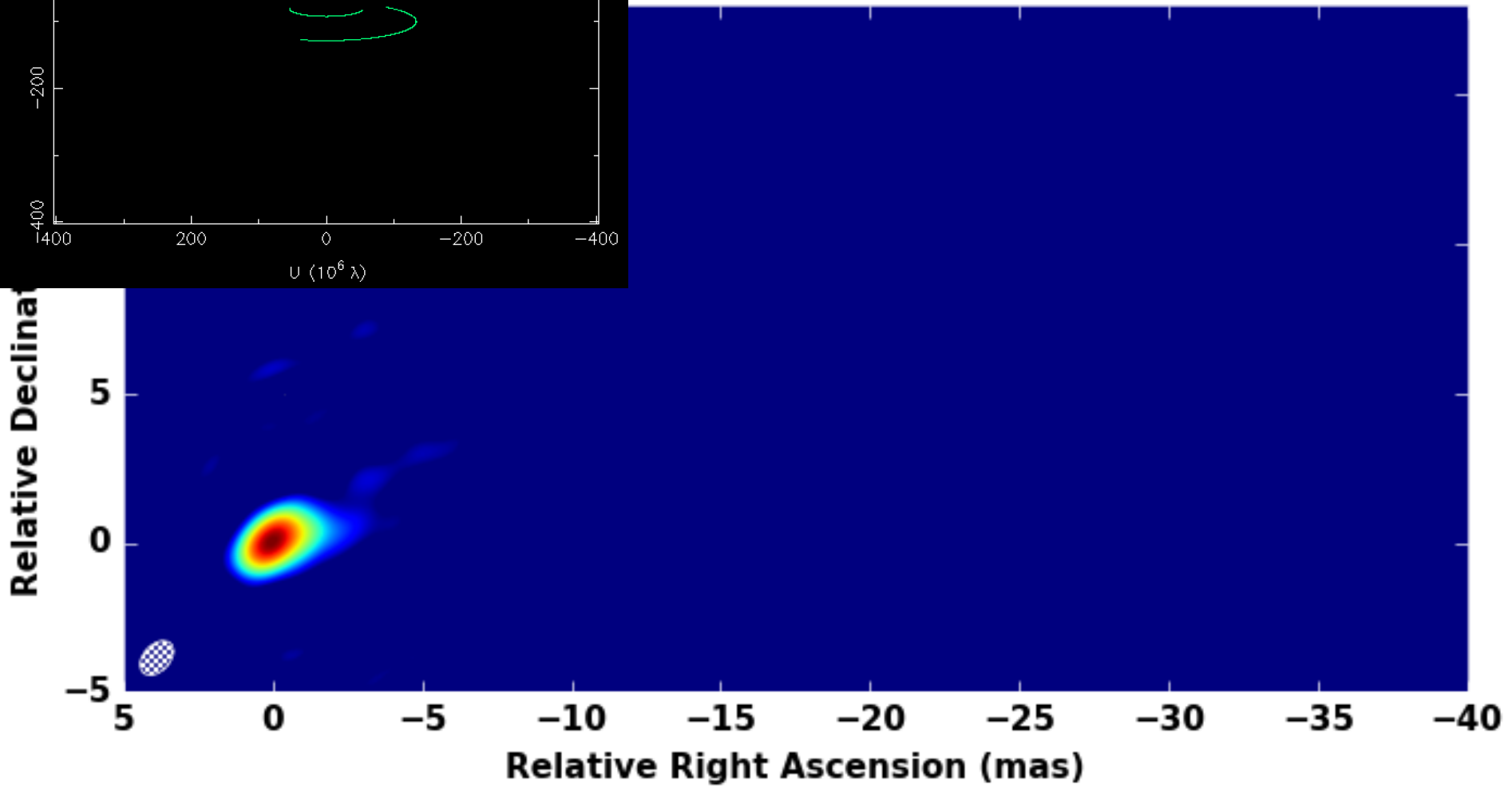
- 2016/Sep/26
- UT 1:00-7:00
- 22GHz
- KaVA, Takahagi, Urumqi
- M87, 3C273
- Max baseline length
  - 2300km => 5500km
  - 1.2mas => 0.5mas

EAVN Workshop @貴陽

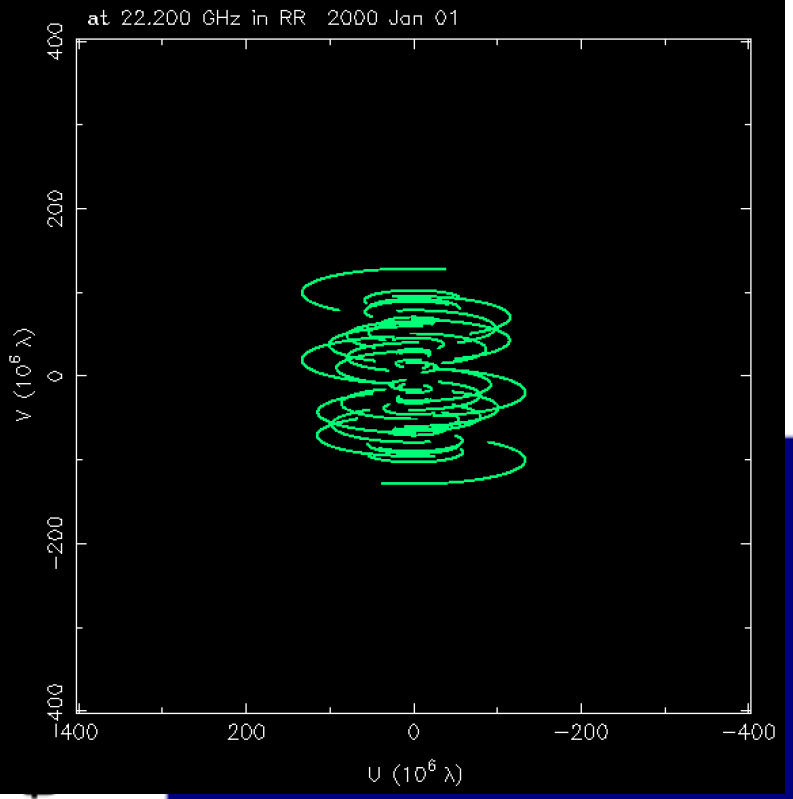
- EAVN SWG発足
- F2F meeting with key persons in China
- FAST 500m

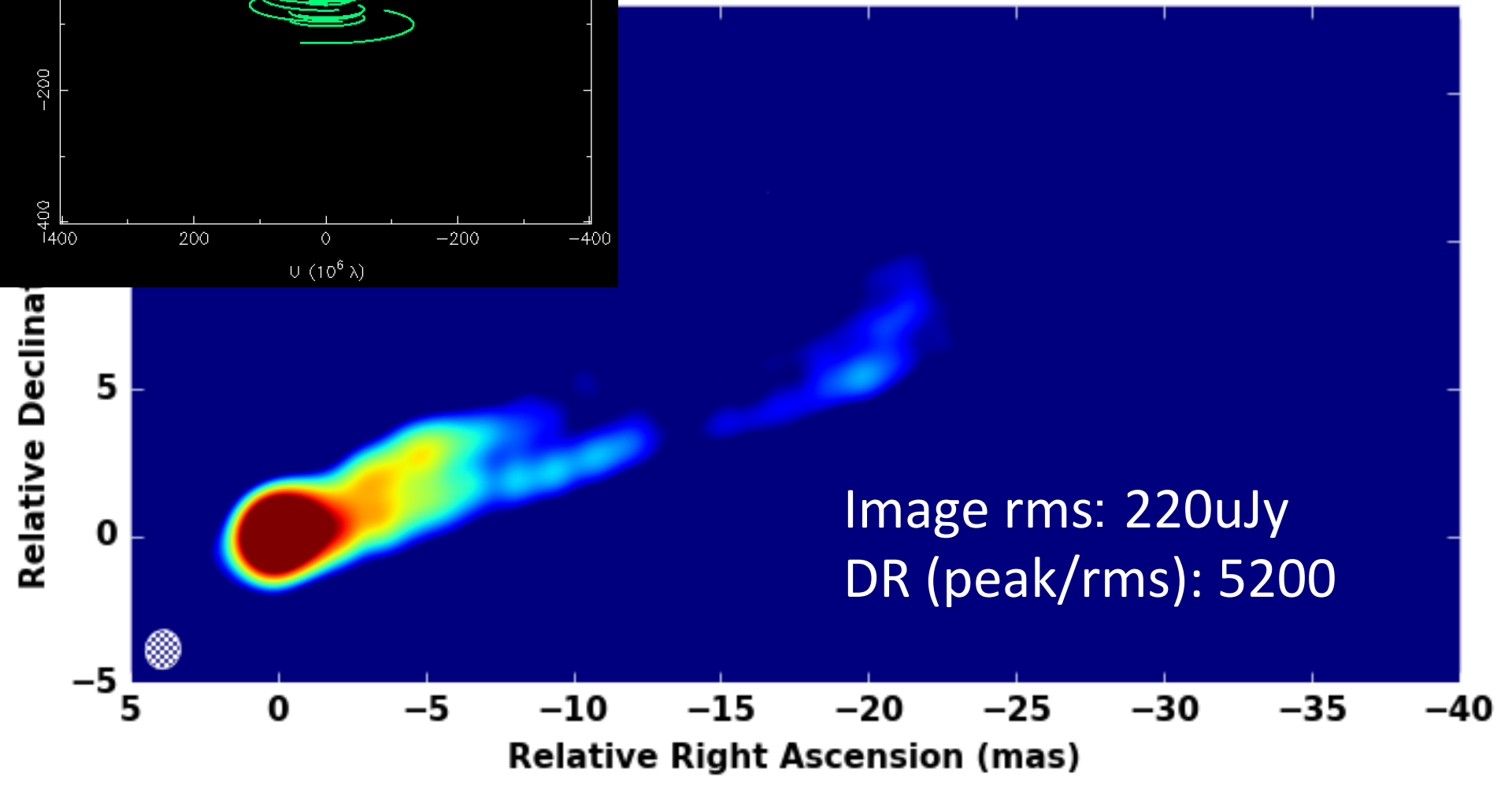
EAVN imaging simulation
M87 22GHz VERA 1Gbps



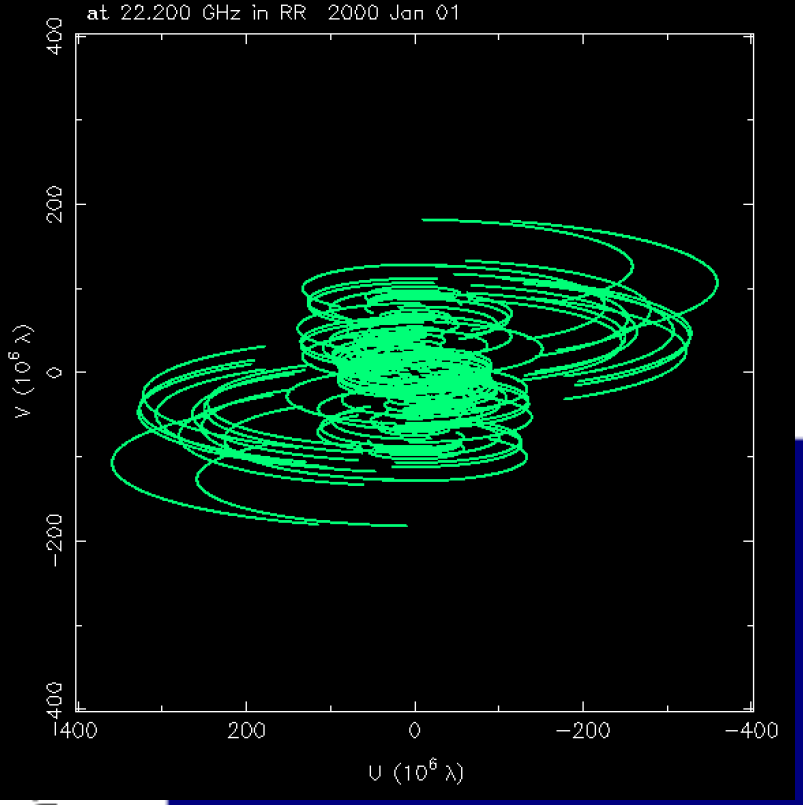


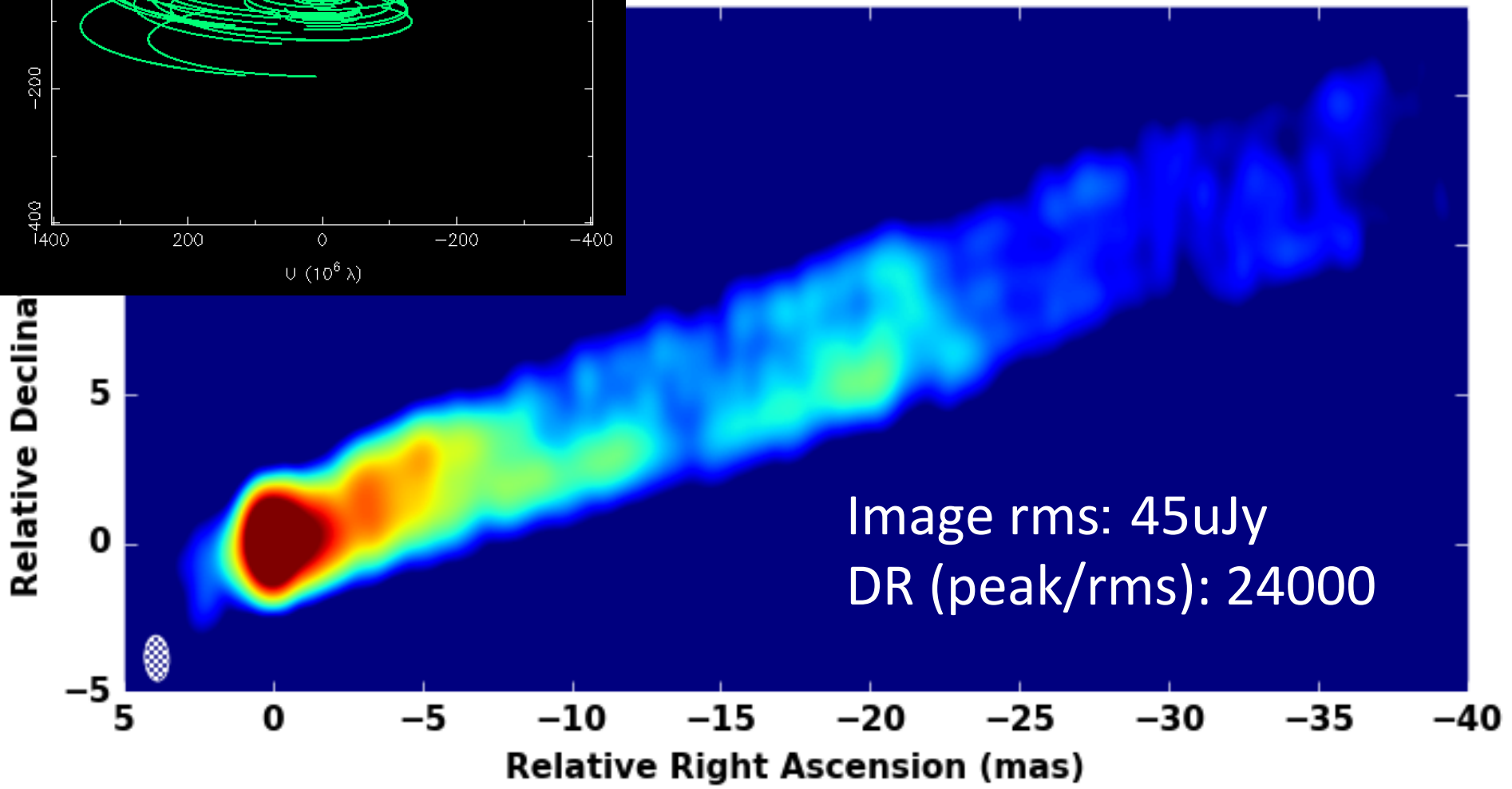
M87 22GHz KaVA 1Gbps (we are here now)





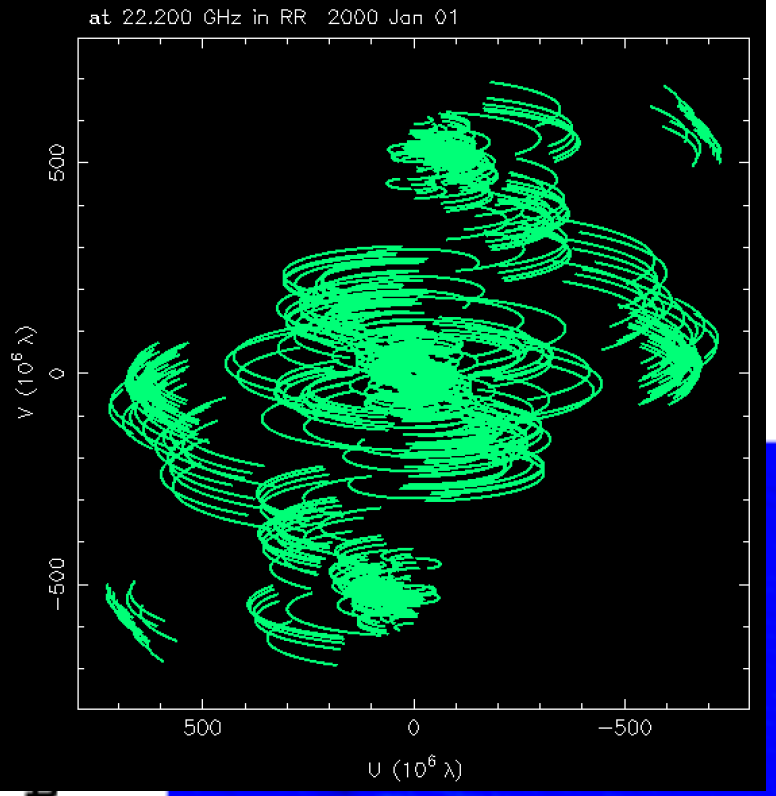
M87 22GHz EAVN13(KaVA+T6+Ur+Sj +Tk+Ks+Gf) 2Gbps



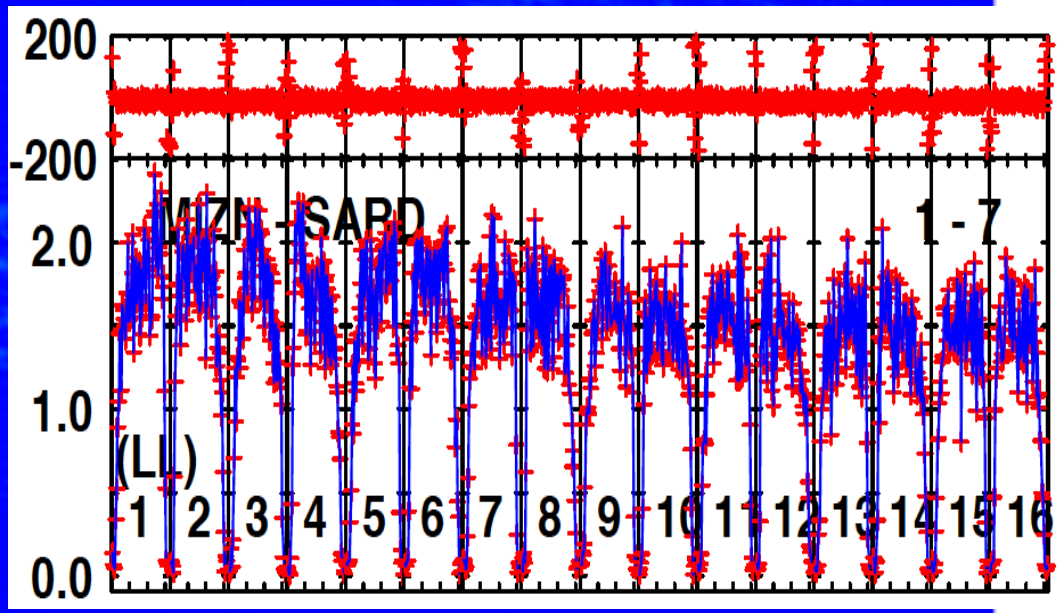


(余談)

M87 22GHz 2Gbps EAVN13+TVN+LBA +Italy



VERA4局 + イタリア3局 フリンジ検出（今月！）

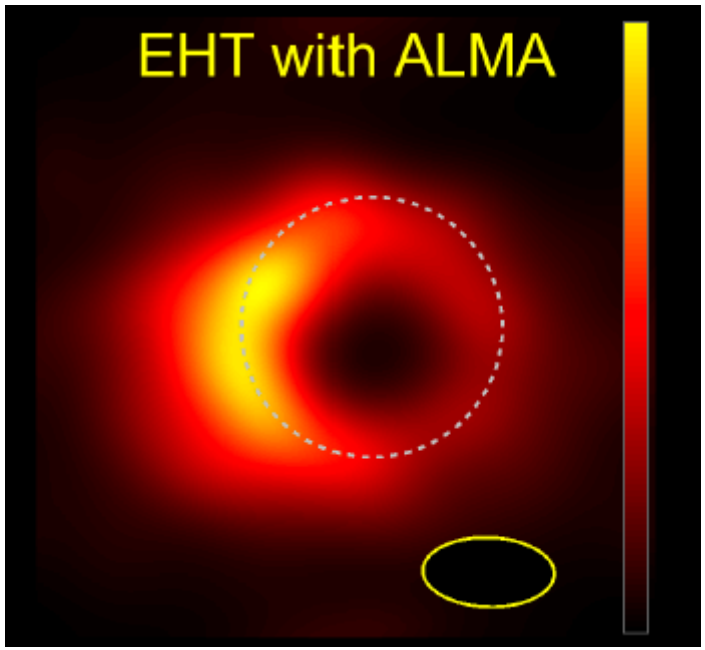


2017年春EAVNキャンペーン観測について

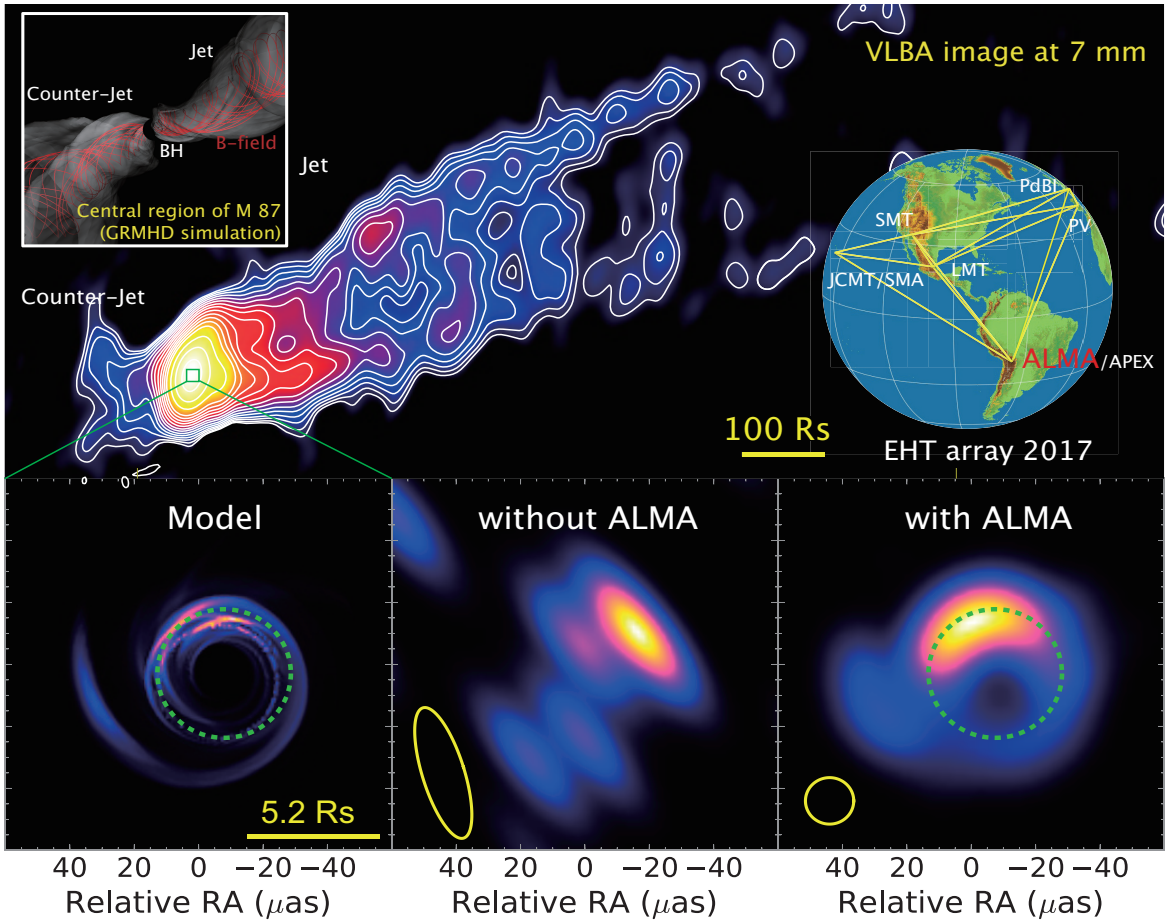
First EHT with ALMA is scheduled in Apr/2017

Event Horizon Telescope (230GHz VLBI)

SgrA*



M87



史上初めてブラックホールの写真が得られるかもしれない

EHTとコラボ：EAVNを世界にアピールする絶好の機会

KaVA/EAVN Large Program
Mar-Apr/2017 draft schedule

	March/ 2017				April/ 2017				May/ 2017
	1st week	2nd week	3rd week	4th week	1st week	2nd week	3rd week	4th week	1st week
EHT+ALMA					3mm & 1mm	1mm			
M87 22GHz (7hr)	KaVA1		EAVN1		EAVN1		EAVN1		KaVA1
M87 43GHz (7hr)	KaVA1		EAVN1				EAVN1		KaVA1
SgrA* 43GHz (6hr)		KaVA1							KaVA1
M87+SgrA* 43GHz (10hr)				KaVA1	EAVN1 +KaVA1	KaVA2			

- KaVA LP スロットのうち、EHT周辺の数エポックをEAVNに割り当て
- EAVN 22GHz: KaVAに加え、Tianma, Urumqi, Sejong交渉中
- EAVN 43GHz: KaVAに加え、Tianma, Sejong交渉中
- JVN 22(43)からもご検討いただけると更に強力 (茨城、鹿島、岐阜)

まとめ

- EAVN進捗2016
  - 試験観測の加速
  - 中国コミュニティーとの協力体制
- EAVN 2017春
  - ミリ波VLBI+ALMAとの同時観測で注目度抜群
  - EAVNとして過去最大級のキャンペーン観測
  - JVNからも参加をご検討いただけると非常に強力
- EAVN 2017年度中
  - 定常(共同利用)運用を想定したコミッショニング
  - 2Gbps撮像試験観測
  - 月例観測