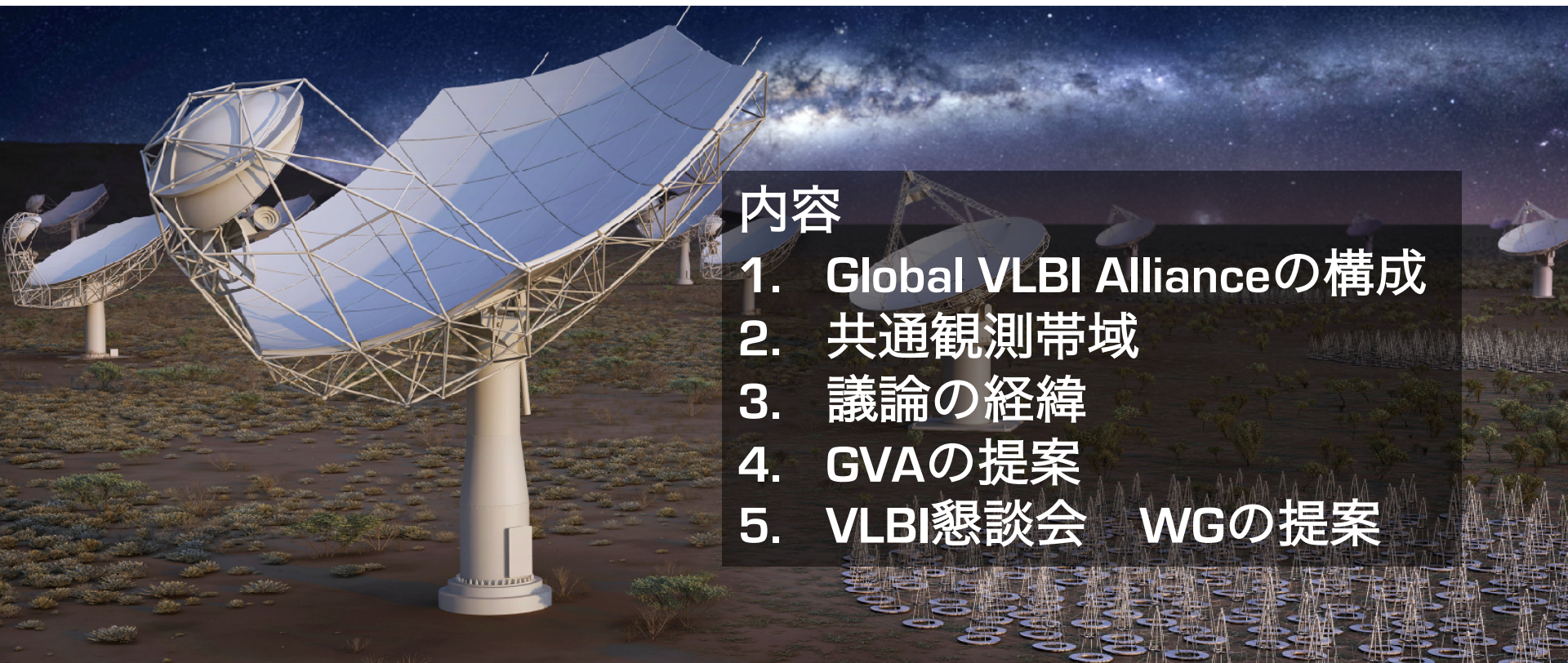


Global VLBI Alliance



内容

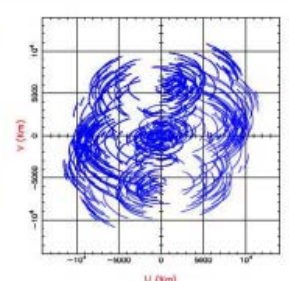
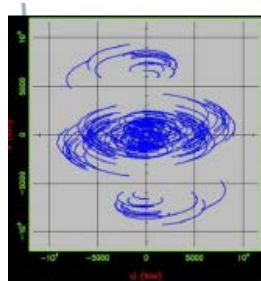
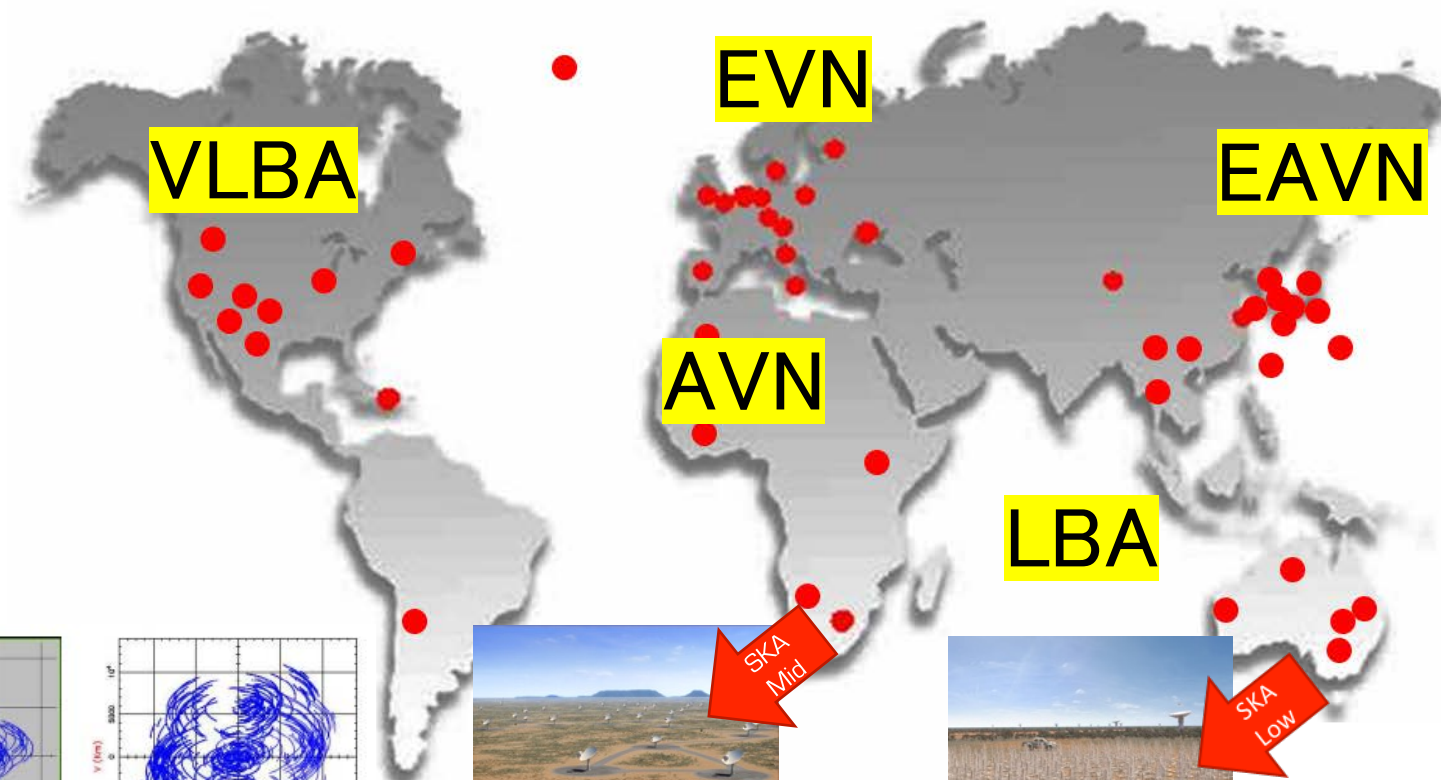
1. Global VLBI Allianceの構成
2. 共通観測帯域
3. 議論の経緯
4. GVAの提案
5. VLBI懇談会 WGの提案



NAOJ SKA1 STUDY GROUP
国立天文台SKA1検討グループ

小林秀行

1. Global VLBI Allianceの構成



SKA Mid



SKA Low

Global Arrayの観測帯域

■L band 1405–1440MHz, 1625–1705MHz

- VLBA, LBA, EVN, EAVN (Tianma, Usuda, Kashima)

■C band 6500–6725 MHz

- VLBA, LBA*, EVN, EAVN(VERA, Kashima, Yamaguchi, Usuda)
* 6564MHzまで

■K band 22100–22500 MHz

- VLBA, LBA, EVN, EAVN

■Q band 42500–44110 MHz

- VLBA, LBA(ATCA), EVN(Ef, Yb, Pv..), EAVN

3. 議論の経緯

- 2018年5月 EVN BDで議論のキックオフ (Astro2020)
- 2018年9月 EVNシンポジウムで会合 (米、欧、アジア、オーストラリアから各2名の代表で議論を進める)
- 2019年9月 EAVNシンポジウムで紹介・議論
- 2019年10月 SKA-VLBI WS@Manchesterで議論、Alliance の提案
- 2019年11月 EVN board でコンセプトの了承



Towards the future

SKA-VLBI Working Group

Provide support for VLBI-SKA integration and operations

- Establish details for interfaces between VLBI arrays and SKA
- Seed of a SKA-VLBI Consortium



¹ Towards a Global VLBI Alliance

Initial version by F. Colomer & H. Kobayashi, October 2019

2. Membership

The following VLBI networks working at cm/mm wavelengths (with a number of common frequency bands) have shown interest:

- The European VLBI Network (EVN),
- The East Asian VLBI Network (EAVN), comprising the Korean VLBI Network (KVN), the Japanese VLBI Exploration of Radio Astrometry (VERA) telescope, and the Chinese VLBI Network (CVN),
- The Australian Long Baseline Array (LBA)
- The Very Long Baseline Array (VLBA)
- The Global Millimeter VLBI Array (GMVA)

Additional VLBI instruments, observing at other frequency ranges, may also be interested:

- The International LOFAR Telescope (ILT)
- The Event Horizon Telescope (EHT)
- The International VLBI Service for Geodesy and Astrometry (IVS)

The Square Kilometer Array Organization (SKAO) should be aware and involved in the discussions.

VLBI 運営小委員会資料案たたき台 (ver 1.0)

VLBI 運営小委員会 2011 年 5 月 9 日

国際 global-VLBI 構想具体化に向けた活動の提案

水沢 VLBI 観測所

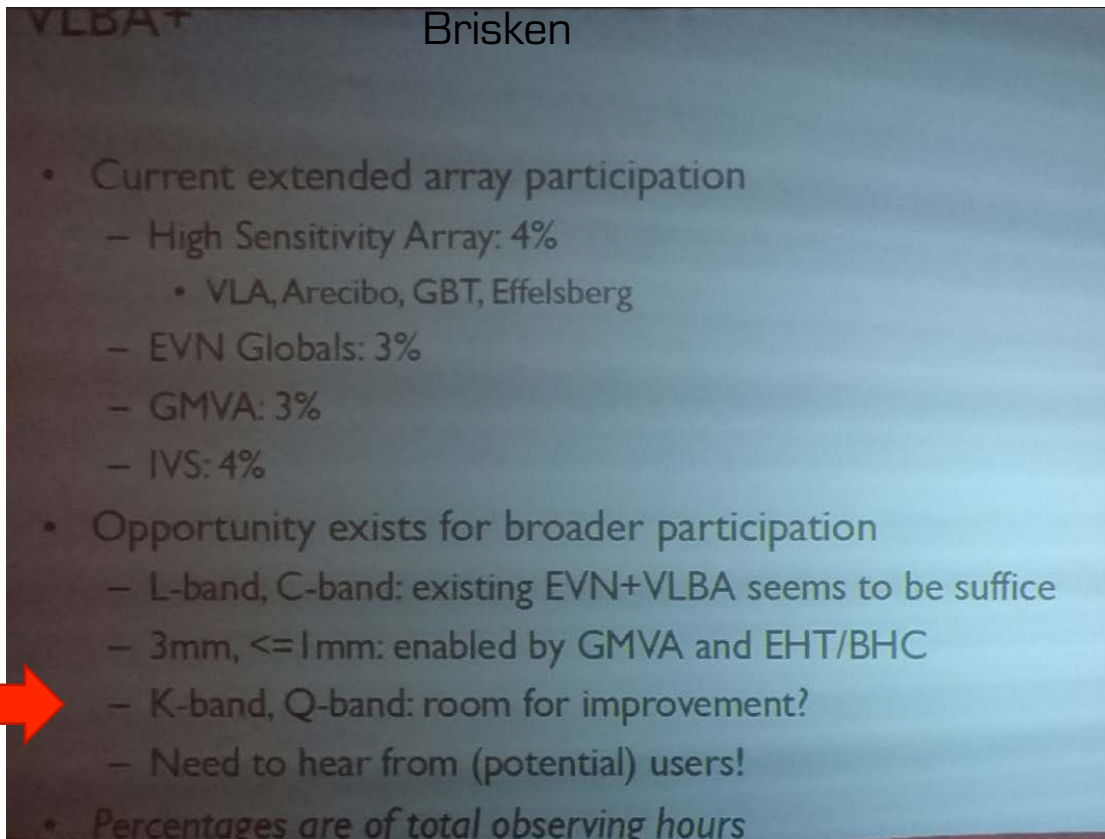
萩原喜昭

● 提案の背景及び理念

2011 年 1 月 27 日に NRAO-C'ville にて、VLBA Workshop: The Future of the VLBA が開催され世界各地から VLBI 関係者が参集した。NSF と NRAO の間で、2011 米国年度以降の VLBA の運用経費に関して取り決めがあり、それに従い新しい運用のモデルを構築することが、目下 NRAO の課題とな

VLBA+EVN → Global VLBI array 主にL,C bandの共同網として運用中

2018EVNシンポ Walkter
Brisken



- Current extended array participation
 - High Sensitivity Array: 4%
 - VLA, Arecibo, GBT, Effelsberg
 - EVN Globals: 3%
 - GMVA: 3%
 - IVS: 4%
- Opportunity exists for broader participation
 - L-band, C-band: existing EVN+VLBA seems to be suffice
 - 3mm, <= 1mm: enabled by GMVA and EHT/BHC
 - K-band, Q-band: room for improvement?
 - Need to hear from (potential) users!
- Percentages are of total observing hours

VLBAもEVNに続いて、K,Qバンドでも共同アレイの可能性に言及 (2018EVNシンポ)



5. VLBI懇談会内にGlobal VLBI Alliance WG設置の提案

■VERA/JVN→KAVA→EAVNの自然な拡張としてので、 Global VLBIを検討するWGの設置の提案

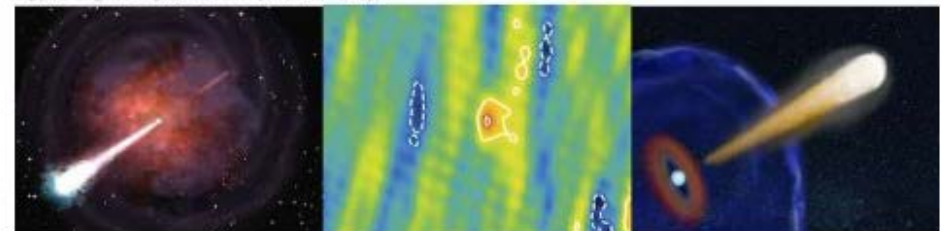
- 日本のScience case , White paperの検討
- 国内の望遠鏡の運用の検討
- 科学運用の検討
- その他 (次項参照)

Towards a “Global VLBI Alliance” (II)

Science case study → White paper



- Coordination forum
 - Technical (TOG, IVTW, etc)
 - Governance, (complementary) strategies
- Logistics
 - Align proposal deadlines
 - Common access point and proposal tools
- Global VLBI observations
 - 22/43/(86) GHz global campaign
- User support
 - Of any user in any network
- Scientific cooperation
 - Facilitate attendance to conferences
 - Next EVN symposium 2020 in Ireland



“A global network of radio telescopes exposes the aftermath of a violent merger of neutron stars” (Guirlanda et al. 2019)

■Global VLBI Alliance の議論が進んでいる

- SKAなど次世代望遠鏡との連携
- VLBAの他のネットワークとの連携の可能性

■VLBI懇談会に再度、Global VLBI network WGの提案