Exploring the transverse structure of M87 jet with KaVA Large Program

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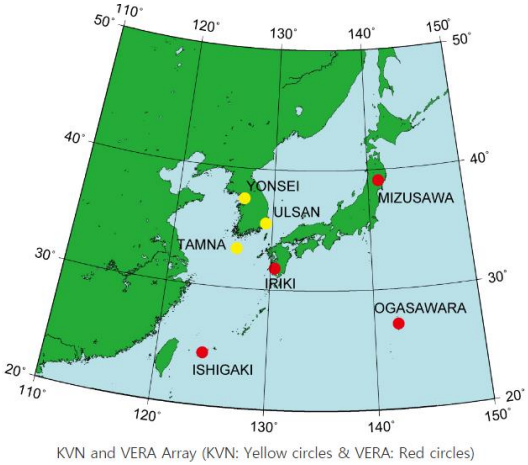
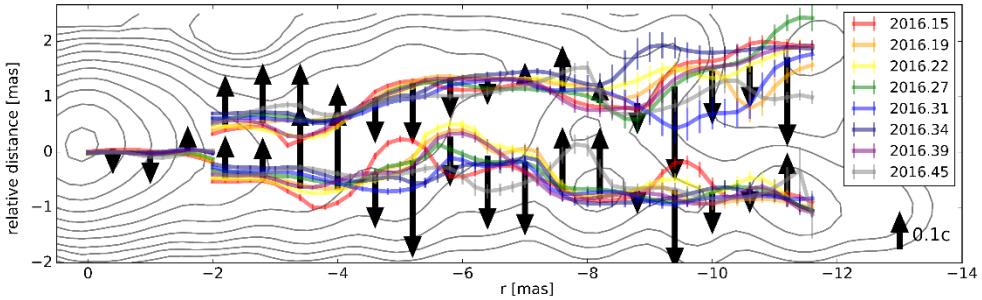
KaVA AGN Large Program for M87

- Goal of the KaVA AGN LP for M87 : **to test and constrain the magnetically-driven jet paradigm by mapping velocity fields of the M87 jet.**
- (biweekly) monitoring observation at 22 and 43GHz.
- For the 1st season of the LP observation, we have observed for 9 epochs from February to June 2016.



KVN and VERA Array (KVN: Yellow circles & VERA: Red circles)

Transverse motion of M87 jet



- direction of the transverse motion changes several time
- the direction of the transverse velocity is opposite to the direction of the jet structure
- **1) the jet follows helical distribution of magnetic field and/or 2) existence of a propagating wave pattern.**

Spectral index distribution along jet ridge lines

- **at r < 4.5mas, the magnetic field strength or electron density is larger at the southern ridge, whereas at r > 4.5mas**, those are larger at the northern ridge.
- This result also supports the helical distribution of the magnetic field along the jet.