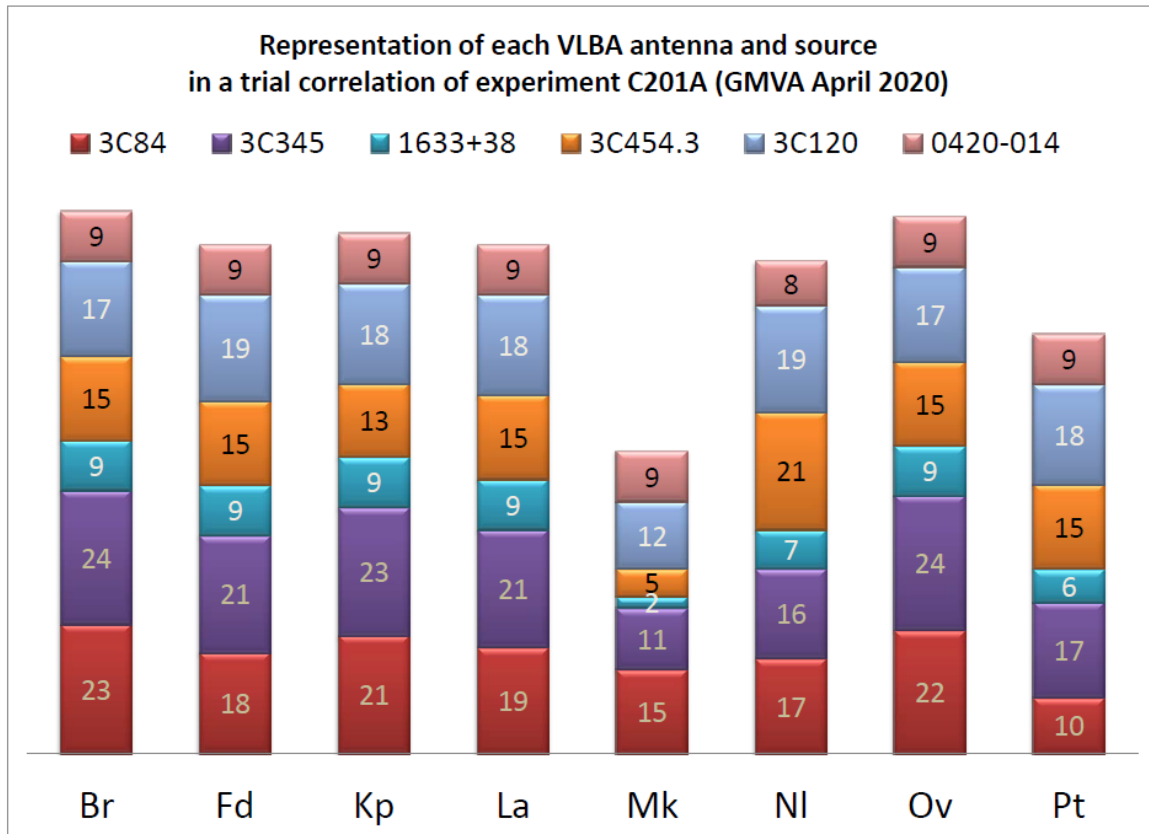


VLBA performance report based on a preliminary correlation of a part of C201A experiment of the GMVA April 2020 session.

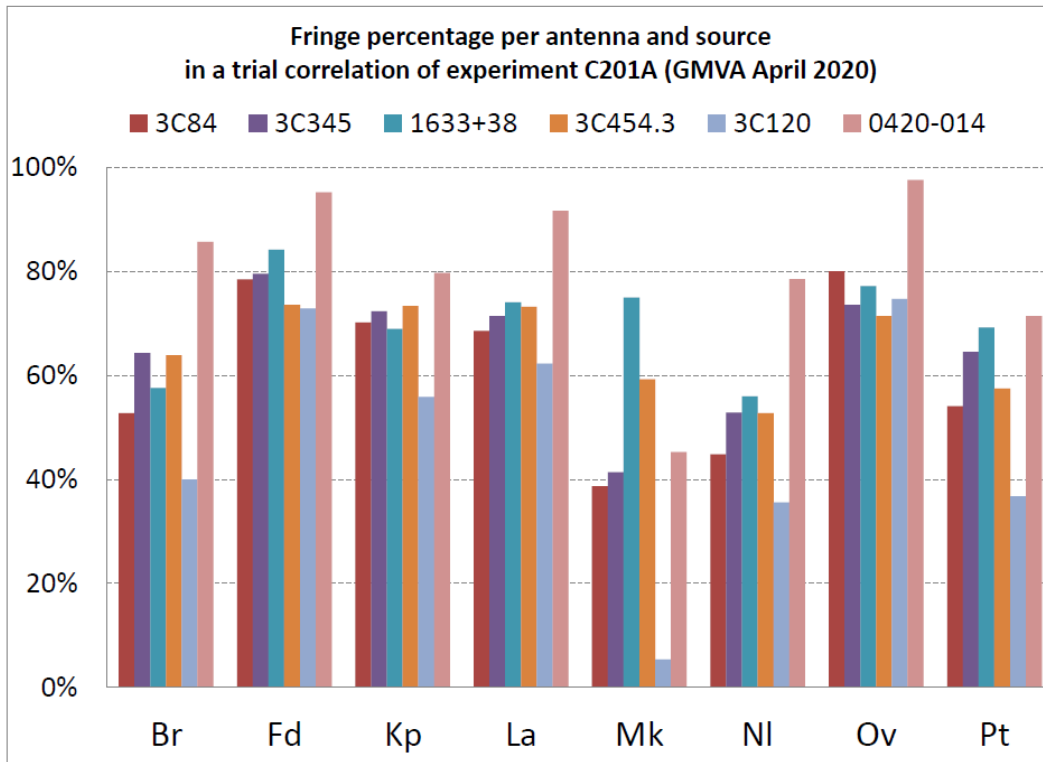
Yurii Pidopryhora, MPIfR
30.06.2020

A preliminary correlation was performed on a part of data recorded during the spring 2020 session of GMVA in order to determine if the problems of the previous session were fixed. More than a hundred consecutive scans on several bright sources were selected from the middle of C201A experiment, the scope of this test correlation can be seen from the following histogram.

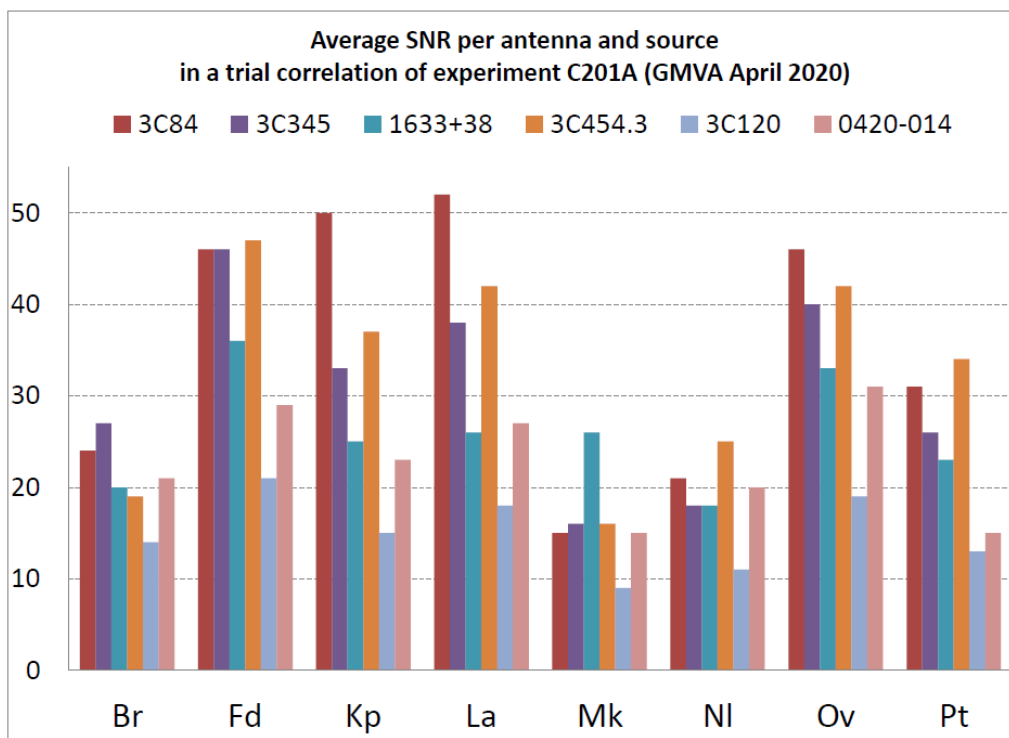


In addition to eight VLBA antennas four EVN antennas were also correlated: Ef, On, Ys and Mh. In all scans fringes were routinely found both between the VLBA antennas and to the EVN antennas.

The following histogram illustrates percentage of fringes for each antenna and source, taking all possible baselines in LL and RR polarizations as the basis:



In most cases fringes were found for at least half of all possible baselines, and for brighter sources this fraction is even higher. And the fringes are not marginal, as we can see from the distribution of average SNR in the following histogram:



Even for Mauna Kea station, where poor performance was expected this session, the situation is not so bad. And for other stations the performance is either consistent with their typical performance in GMVA session or quite better.

Overall we can conclude that the VLBA performed very well in the spring GMVA session of 2020.

The following are several examples of fringe plots: 8 fringes from each of VLBA antennas to Effelsberg and 6 fringes within the VLBA.