RadioAstron observations of 3C 345
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The RadioAstron Polarization KSP
Supermassive black holes in the centres of radio-loud active galactic nuclei (AGN) produce collimated relativistic outflows (jets). Space-VLBI observations within the RadioAstron (Kardashev et al. 2013) key science program on AGN polarization provide images at an unprecedented resolution, which enables us to study the magnetic field strength and morphology in the innermost regions of AGN jets. 11 of the brightest and highly polarized AGN were observed during observing periods AO-1, -2, -3, -4 and -5 between July 2013 and April 2018, with continuation approved for AO-6 (Lobanov et al. 2015; Goméz et al. 2016; Bruni et al. 2017).

3C 345
We present here images of the strong blazar 3C 345 (1641+399), a flat-spectrum radio quasar at a redshift of z = 0.59 (Marziani et al. 1996). It is core-dominated and shows a bending jet at lower frequencies (e. g. Ros et al. 2000; Schinzel et al. 2012).

Observations
The observations at λ = 18 cm took place on March 30th and March 31st 2016 during AO-3, and with a total of eighteen antennas from a ground array were observing, complemented by the Spekt-R space telescope. We detect ground-space fringes up to 9 earth diameters.

Results
We present here the calibrated visibility data and preliminary images of the source in total intensity.

Conclusions
Correlated visibilities between ground and the space telescope have been found up to a projected baseline distance of ~9 earth diameters. 3C 345 was successfully observed with RadioAstron with sub-mas resolution, corresponding to a projected distance of 1.9 pc or ~5000 gravitational radii for a black hole mass of \(3.4 \times 10^{13}\) M\(_{\odot}\) (Lobanov 1998). The visibility data imply the presence of emitting regions with the brightness temperature in excess of \(3.4 \times 10^9\) K. These results in total intensity suggest promising future findings also for the polarization data.

References
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