Astronomy & Astrophysics

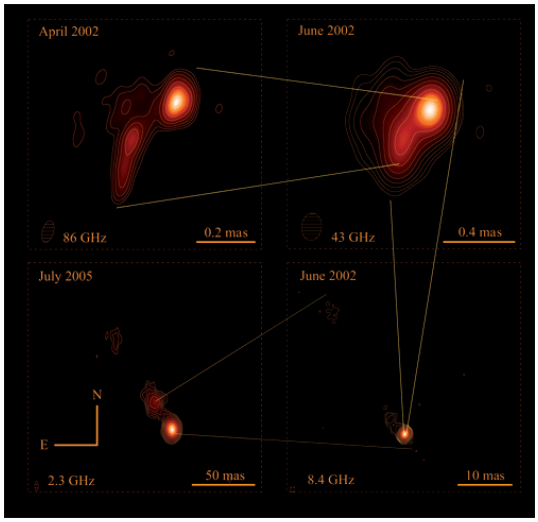
HIGHLIGHTS: this week in A&A

Volume 476-3 (December IV 2007)

In section 1. Letters

"Superluminal non-ballistic jet swing in the quasar NRAO 150 revealed by mm-VLBI", by I. Agudo et al., A&A 476, p. L17

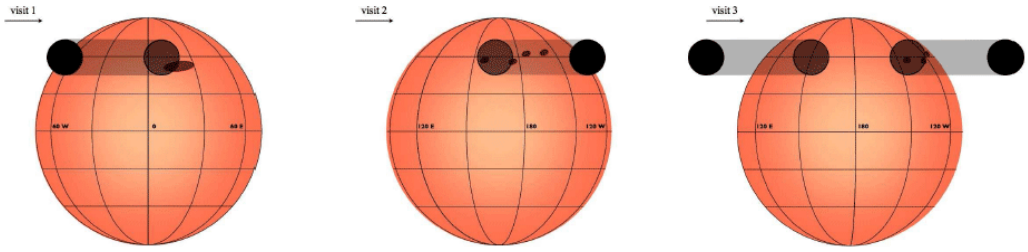
The authors used the VLBI in the millimetric range to monitor the emission of a jet from the radio source NRAO 150 on a time base of 10 years. They obtained a spatial resolution of 0.16 milli-arcsec. They surprisingly observed a swing in the jet direction of 11 degrees per year, in the region within 31pc of the AGN. It is the first time that a non-ballistic superluminal motion has been observed, so closely to the AGN. This will allow us to understand the physics of the jet triggering phenomenon better. The jet wobbling could be due to a binary black hole or to the direction change of the jet nozzle. It might be related to the strong magnetic field in the region or could come from an impact with the ambient medium.



In section 10. Planets and planetary systems

"Hubble Space Telescope time-series photometry of the planetary transit of HD189733: no moon, no rings, starspots", by F. Pont et al., A&A 476, p. 1347

This is an excellent paper about extracting as much data as possible (concerning planetary transits and star spots) from some high-accuracy, HST stellar light curve observations. The data clearly show that the planetary transit occults starspots. The authors conclude, among other things, that there can be no Earth-size moons or rings around the planet.



In section 1. Letters

"Inhibition of thermohaline mixing by a magnetic field in Ap star descendants: implications for the Galactic evolution of 3He", by C. Charbonnel and J.P. Zahn, A&A 476, p. L29

Thermohaline mixing has recently been discovered to be able to lead to the distruction of 3He in low-mass red giants, which they would otherwise produce abundantly. In this paper, the authors show that in magnetic stars that may be about 10% in the A star regime, this destruction mechanism is inhibited by the magnetic fields inside these stars. This may help for understanding the surface abundances of many red giant stars and reconciling the chemical evolution of 3He in our Galaxy with the observational constraints.

In section 6. Interstellar and circumstellar matter

"Carbonaceous dust grains in luminous infrared galaxies. Spitzer/IRS reveals a-C:H as an abundant and ubiquitous ISM component", by E. Dartois and G.M. Munoz-Caro, A&A 476, p. 1235

This convincing contribution to the "carbon debate" shows that an appreciable fraction of carbon is locked up in the form of hydrogenated amorphous carbon grains in many galaxies.