Astronomy & Astrophysics

HIGHLIGHTS: this week in A&A

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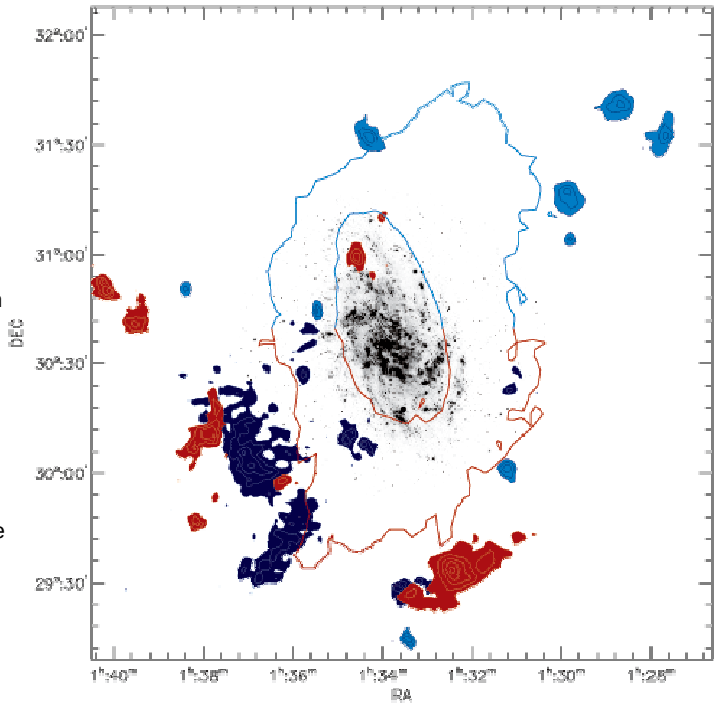
In section 4. Extragalactic astronomy

"HI clouds in the proximity of M33", by M. Grossi, C. Giovanardi, E. Corbelli et al., A&A 487, p. 161

High velocity clouds (HVC) have been known for a long time to infall towards our own galaxy, although their precise origin is still not completely clarified. It is difficult to detect similar HVC around other galaxies, since they are weak. The authors use a sensitive survey of HI emission around M33 and find HI clouds with a total gas mass of 10^7 Mo. They consider several hypothesis for the origin of this gas, which is compatible with gas coming from mini-halos, and also gas infalling from cosmic filaments, or even with being debris from a previous collisions with M31.



In section 1. Letters to the Editor. Sub-Sect. 10. Planets and planetary systems

"Limits to the planet candidate GJ 436c", by R. Alonso, M. Barbieri, M. Rabus et al., A&A 487, p. L5

GJ 436 is a very interesting system with a Neptune-type planet orbiting in 2.64 days around an M-dwarf star. The planet was found to be transiting in front of its star by Gillon et al. A&A (2007), hence yielding a measurement of its size, roughly equivalent to that of Neptune, i.e. the smallest transiting planet known so far. The planet also has an eccentric orbit, and based on the analysis of the motions of the star, Ribas et al. ApJ (2007) had determined that a second planet should exist in the system with a mass of 5.5 earth masses and an orbital period of 5.2 days. However, this would imply that the 2008 transits of the Neptune-mass planet should last 2 minutes longer than in 2007. By very careful monitoring of the transits of GJ 436 in 2008, Alonso et al. are able to rule out the hypothesis put forward by Ribas et al.

In section 6. Interstellar and circumstellar matter

"CN Zeeman measurements in star formation regions", by E. Falgarone, T.H. Troland, R.M. Crutcher, G. Paubert, A&A 487, p. 247

Interstellar magnetic fields are widely believed to play an essential role in controlling the stability and collapse of molecular clouds, and yet they have very seldom been directly measured there. The authors use circular polarization measurements of the CN(J=1-0) line to measure the line-of-sight component of the magnetic field in 14 starforming regions, sampling gas with a typical density of 5E5 per cubic centimeter. They find that these cores are critical to slightly supercritical, and that the turbulent and magnetic energies are in approximate equipartition.

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