

New Herbig-Haro jets in Orion

August 20 2010

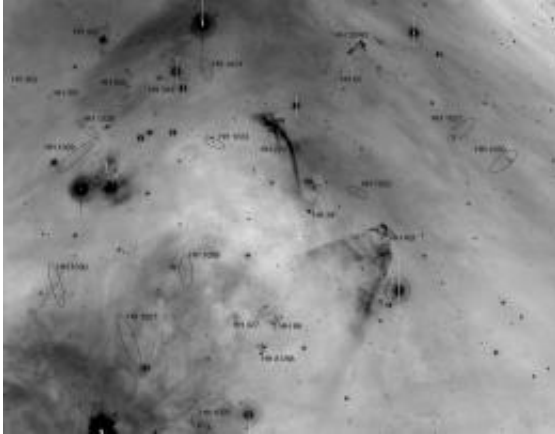


Figure 1: Suprime-Cam image of Lynds 1641, a molecular cloud to the south of Orion Nebula. It reveals many jet features from the new-born stars, depicted in three samples above.

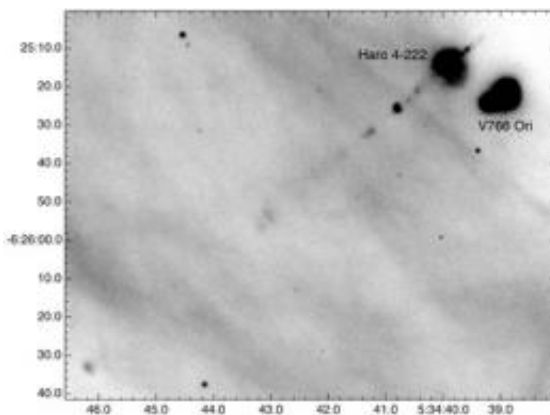
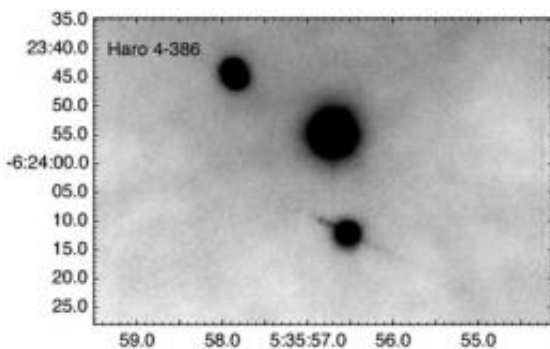
(PhysOrg.com) -- A research team using the Subaru Prime Focus Camera (Suprime-Cam) has obtained some of the deepest and highest resolution images ever taken of the large star-forming molecular cloud Lynds 1641, located just south of the Orion Nebula.

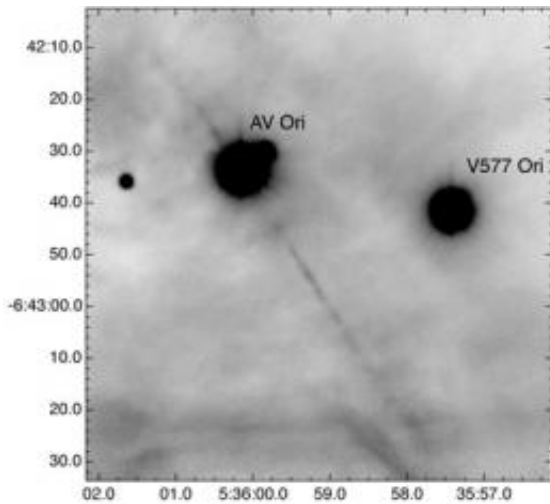
Many bright Herbig-Haro flows occupy this part of the sky. Emissions from Herbig-Haro objects are caused by powerful [shock waves](#) that occur when supersonic outflows from [newborn stars](#) ram through the interstellar medium.

Such outflow phenomena usually occur during the very early stages of

[star formation](#), when newborn stars are still deeply embedded in their placental materials of gas and dust.

The discovery of 11 new jets of gas, fainter than most of those known in the region, required the combination of Suprime-Cam's large field-of-view with the powerful light-gathering capability of the Subaru Telescope's 8 m mirror.





It was surprising that all of the newly observed jets emanate from visible stars, which have already made their way out of the cocoon from which they were born. Researchers speculate that the newly discovered jets may derive from one of two sources. They may represent the final vestiges of the outflow phenomena. Or, the jets may be triggered by disturbances in remnant circumstellar disks, which might be perturbed by the close passage of a companion star in a binary system.

The results of this research will be published in the [Astrophysical Journal](#). Detailed studies of the jets and their driving sources are planned to understand the nature of these unexpected outflows.

Provided by Subaru Telescope

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