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By: Dan Talpalariu, Science Editor



Faint glow of a stellar nursery detected by submillimeter astronomy observation ESO / APEX / DSS2 / SuperCosmos

[Submillimeter Astronomy Enhances Stellar Formation Study](#)

This becomes the new trend in astronomy

A new [press release](#) from the European Organization for Astronomical Research in the Southern Hemisphere (ESO, an inter-governmental institution involving 13 member states) shows the importance of the submillimeter astronomy field. Focusing on the formation of new stars within a studied region of space, it demonstrates that this technique, once regarded as the edge of wavelength measurements, has a crucial potential for understanding the universe.

A recent image provided by the 12-m Atacama Pathfinder EXperiment (APEX) telescope in the Atacama desert described the birth process of stars in a zone named RCW120, located approximately 4,200 light years away from our planet, in the direction of the Scorpius constellation. As you can see in the adjacent image, a giant hot star ejects large amounts of ultraviolet radiation, ionizing the gas in the immediate surroundings. This process deprives the hydrogen atoms of their electrons, determining the presence of a reddish light dubbed H-alpha emission. The ten-light year across bubble of ionized gas constantly expands, causing shock waves which affect a fraction of the surrounding cold gas and dust. These, in turn, become unstable, collapsing into thick, cold hydrogen clouds under their own gravity, a proper environment for star formation. But the very low temperatures of the hydrogenous clouds (about -250°C) emit a faint light which can only be spotted at submillimeter wavelengths, underlining the major contribution of the novel field of observational astronomy. The LABOCA camera of APEX allows the detection of four times fainter cold gas clumps than previously observed. As a consequence of the great results of this field, an even better device called the Atacama Large Millimeter/submillimeter Array (ALMA) will be built by 2012 on the Chajnantor plateau in Chile. It will contain more than 60 antennas 12 meters in width, interconnected over distances greater than 16 km, in order to create a single, large telescope.