A team led by Goddard scientists found surprising sulfur chemistry in the coma (atmosphere) of a comet found by the PanSTARRS project. Certain molecules, previously believed to be produced from gas, were instead found to be produced from the break-up of dust particles.

This result could help explain why so little sulfur is observed in the gases that make up star-forming (and comet-forming) environments, since this work indicates that it may be hidden from our telescopes inside the dust particles that form the comets.

Data were taken with the ALMA radio telescope using a special instrument component suited for observing comets. This is the first demonstration that this subcomponent can be used to take the complete chemical inventory of comets year-round.