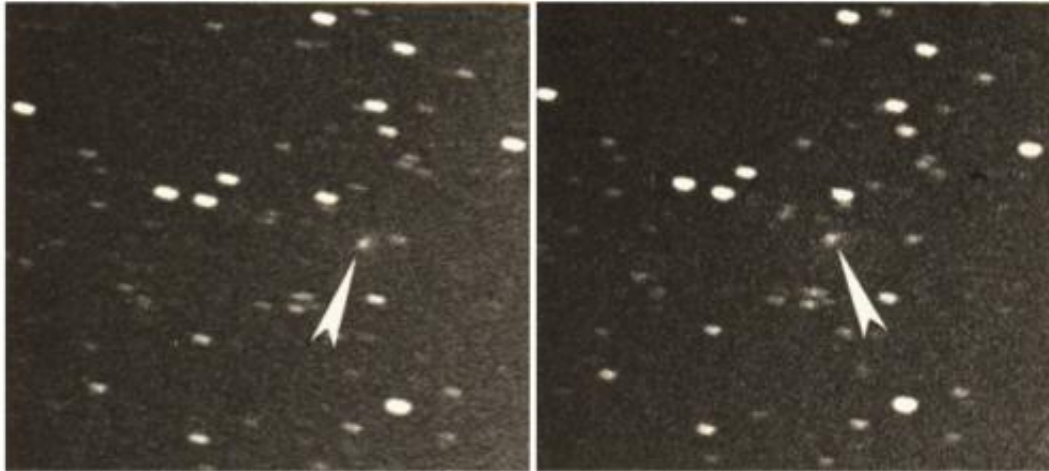


Image: Comet 67P/Churyumov–Gerasimenko

October 21 2014



Credit: K. Churyumov

It was 45 years ago when astronomer Klim Churyumov and Svetlana Gerasimenko, one of his researchers, unwittingly began a new chapter in the history of space exploration.

During a comet-hunting expedition to Alma-Ata Observatory, Kazakhstan, they discovered the bizarre, ice-rich object – subsequently named Comet 67P/Churyumov–Gerasimenko – that is now under close scrutiny by ESA's Rosetta spacecraft.

In November 2014 it is hoped that more secrets will be revealed when Rosetta's Philae attempts the first soft-landing on the nucleus of a comet.

These two images, taken with a wide-angle Schmidt telescope, were exposed a short time apart during the historic expedition. The pair of [photographic plates](#), taken by Klim Churyumov on 21 September 1969, shows a fuzzy object (indicated by the arrows) shifting position slightly in the night sky.

The comet appears indistinct because its solid heart is surrounded by a coma of gas and dust, material that was ejected into space as the ice-rich nucleus was warmed by solar radiation.

Before the era of digital cameras, imaging astronomical objects was a slow, painstaking process involving lengthy exposures of the same part of the sky on glass plates that were coated with a light-sensitive emulsion.

Glass-backed plates, rather than film, were commonly used in astronomy because they did not shrink or deform noticeably in the development process or under different environmental conditions. They were held in large-format frames for wide-field imaging.

Each successive plate was exposed after an interval of 20–30 minutes. The plates then had to be taken back to the laboratory to be processed and studied. By comparing the images, it was possible to find new comets and other fast-moving objects as they shifted across the background of more distant, 'fixed' stars.

Since the discovery of this comet, advances in [space exploration](#) have revolutionised comet studies, starting with the first close-up images of [comet](#) Halley obtained by ESA's Giotto spacecraft in 1986. Since then, a handful of comets has been visited by spacecraft and some [comet dust](#) has been brought back to Earth.

These studies show that comets can no longer be regarded simply as dirty

snowballs. Ideas about their origins and nature have greatly altered and there are still many questions – which Rosetta and its Philae lander could go a long way towards answering.

Provided by European Space Agency

Citation: Image: Comet 67P/Churyumov–Gerasimenko (2014, October 21) retrieved 20 March 2024 from <https://phys.org/news/2014-10-image-comet-67pchuryumovgerasimenko.html>

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