Morphology of comet Churyumov-Gerasimenko in its 1969–1970 apparition

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The short-period comet Churyumov-Gerasimenko or 67P was discovered by the Kyiv astronomers Klim Churyumov and Svitlana Gerasimenko on October 22, 1969, on the basis of five photographic plates exposed with the help of the 50-cm Maksutov reflector of the Alma-Ata Astrophysical Institute on 9, 11, and 21 Sept. 1969. The first 5 precise positions of the comet were sent to Dr. Brian Marsden, who showed it was a new comet. The comet had an apparent magnitude of 13 and a faint tail about 1 arcmin in length at the position angle 280°. Over the entire period of our observations from Sept. 9, 1969 to March 1, 1970, the comet had a narrow, straight tail, probably of type I. Its length ranged from 1' to 11'. On November 16, the comet had a fan-like tail. Some characteristics related to the structure of the comet are determined and discussed: d, the diameter of the coma; P, the position angle of the tail; and, s, the length of the tail.

The tail axis deviated from the prolonged radius vector by up to the average angle $\sim 6°$, during Nov. 17 — Dec. 11, 1969, and by up to the average angle $\sim 21°$ during Dec. 16, 1969 – March 1, 1970. This fact tells probably about the decrease of the speed of the solar wind and the decrease of the interaction between the solar wind and the plasma tail of the comet. Rosetta, a European space vehicle was launched on March 2, 2004 from Kourou to visit the icy nucleus of the short-period comet Churyumov-Gerasimenko . On Jan. 20, 2014, after 10 years of flight and 31-month sleep, Rosetta was woken up successfully and will now approach the icy nucleus of comet Churyumov-Gerasimenko and pass into orbit around the cometary nucleus. In Nov. 2014, the Philae probe will be sent from Rosetta to the nucleus of comet 67P to study relict matter from the era of Solar System formation.