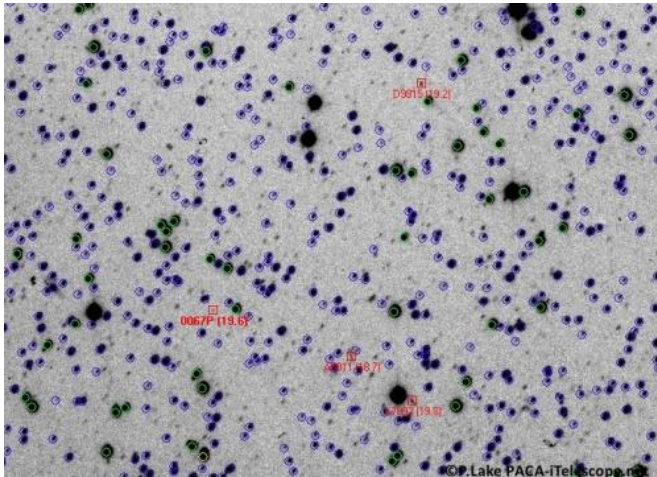


The role of amateur astronomers in Rosetta's mission

19 June 2014, by Padma A. Yanamandra-Fisher



Amateur image of 67P in its 2014 apparition, captured by Australian amateur astronomer, Peter Lake, of iTelescope.net, from Siding Spring, Australia, on 22 May 2014

Amateur astronomers play an important role in observational campaigns of almost every celestial object in the sky, but especially so in the area of comets. Given that some comets might be making their first – or only – passage into the inner Solar System, it is important to collect as much information as possible about them. Then there's the "once-in-a-lifetime" visits, such as the famous comet 1P/Halley, which orbits once every 76 years. But there is also much excitement to observe comets on much shorter periods, learning about any changes they exhibit since their last apparition.

Amateur astronomers are usually the first observers of these objects and provide some of the earliest images and legacy [observations](#) of them. Therefore, it is no surprise that the target of the Rosetta mission, [comet](#) 67P/Churyumov-Gerasimenko (67P/C-G), with an orbit of 6.5 years, has been observed in its last few apparitions by

the amateur astronomer community, even before the comet was selected as Rosetta's target. A mission as ambitious as Rosetta will certainly rewrite the books on comets by itself. So what role can the amateur astronomer community play?

As Colin Snodgrass already explained in his [blog post earlier this week](#) ground-based observations provide a complementary "global" perspective of the comet, as compared to the local environment of the comet sampled by the instruments on the orbiter and lander, in situ.

Although professional observers have access to many observatories, these observations are often restricted to short specific temporal windows due to the competitive nature of allocated observing time on professional facilities. The amateur astronomer community has the advantage of being able to observe the comet over longer time frames and without the need for competed observing time. They can also provide a global network to observe the comet; send alerts should the comet exhibit any unusual behaviour; and provide other specific support as needed by both the mission teams and professional observers.

One recent example of excellent professional-amateur collaborations concerned C/2012 S1 (ISON), which engaged the entire globe as the comet got nearer and nearer to the Sun, and the tension mounted as to whether it would survive or not. There is also an active community following C/2013 A1 (Siding Spring) ahead of its flyby of Mars on 19 October 2014.

But back to Rosetta and 67P/C-G.

The PACA (Pro-Am Collaborative Astronomy) Project has arisen from these campaigns to support observations of Rosetta's target comet. Rosetta's OSIRIS and navigation cameras are already acquiring images of the comet, and professional ground-based observations by ESO's Very Large

Telescope (VLT) were also already acquired earlier this year.

With the expectation of the current apparition of comet 67P/C-G being faint and therefore a challenging observation for most individual amateur astronomers, it was a surprise – and a delight! – that the comet was also detected by an amateur astronomer, on 22 May. *[Update 17 June: see follow-up note from Padma at the end of this post]. Australian astronomer Peter Lake used a 0.5m telescope on the robotic telescope network, iTelescope.net to make the observations. He reported a magnitude of 21.2, and the observation was subsequently confirmed by other amateur astronomers, Paolo Backman and Rolando Ligustri.

Currently the comet is only visible in the southern hemisphere and will not be available to northern latitude observers until early next year. The comet is still rather faint and moving through crowded star fields. Southern hemisphere observers with telescopes of aperture 0.5m and larger, with deep imaging capabilities, should be able to detect the comet at its current magnitude of about 21.2. Observers with smaller aperture telescopes can participate as the comet approaches the limiting magnitude of their telescopes. Amateurs with the appropriate equipment are encouraged to contribute their observations to the group (details below), to help monitor the comet's activity. Spectroscopy measurements are also encouraged.

Your observations can be shared via our Facebook group, PACA_67P, which brings together professional and [amateur astronomers](#) for collaboration of observations of 67P/C-G. Upon joining, you will be requested for information regarding your equipment, preferred mode of observation, location and available filters, to ensure that there is adequate global coverage of observers. You'll also find plenty of advice from other observers! Any amateur astronomer with observations of the comet 67P/C-G in its previous apparitions is also encouraged to contact me for collecting and archiving the legacy data.

Note: 17 June

Since this was posted, reports of amateur

observations of 67P/C-G acquired prior to 22 May 2014 have been reported in various social media and databases. This illustrates both the global reach of social media as well as the difficult nature of tracking all the amateur observations.

Provided by European Space Agency

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