ACTIVITY RESERVOIRS, REPEATING AND NON-REPEATING ACTIVITY OF COMET 67P.

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Long-term high spatial resolution observations of comet 67P during the Rosetta mission allowed us to study cometary activity in details. In some cases, direct connection of the events to the nucleus could be observed ([1], [2], [3]), in others the activity sources could be identified via indirect methods ([4], [5], [6], [7], [8], [9]). Systematic cataloguing of activity events observed during the mission revealed the existence of several activity source concentrations ([8], [9]). Not surprisingly, all those sources were concentrated on long-lasting H_2O ice rich areas ([1], [4], [8], [10]). By investigating surface modifications and spectral variations of those areas, we are able to estimate the local subsurface structures ([11]). Once we combine all available information from various Rosetta instruments for specific events, we can also estimate local volatile and supervolatile contents.

Majority of the activity events observed during Rosetta mission were repeating at different time-scales. Jet like collimated dust features observed on the limb were following the direct solar energy input, therefore, switched on/off diurnally. However, numerous jet like features observed on the surface were repeating but not diurnally ([11]). Additional to those, there were non-periodically repeating outbursts from the same sources but displaying various plume morphologies.

In this presentation, I will first summarize properties of the activity events observed during the Rosetta mission, and then focus on studies of several activity sources.

References:

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