

Rosetta End of Mission

LANDSCAPE OF CHURY



European Space Agency

So how does the comet REALLY look like?



with 4% reflectance...

Some numbers:

Density: $\sim 500 \text{ kg/m}^3$

Albedo: 0.03 in the FUV

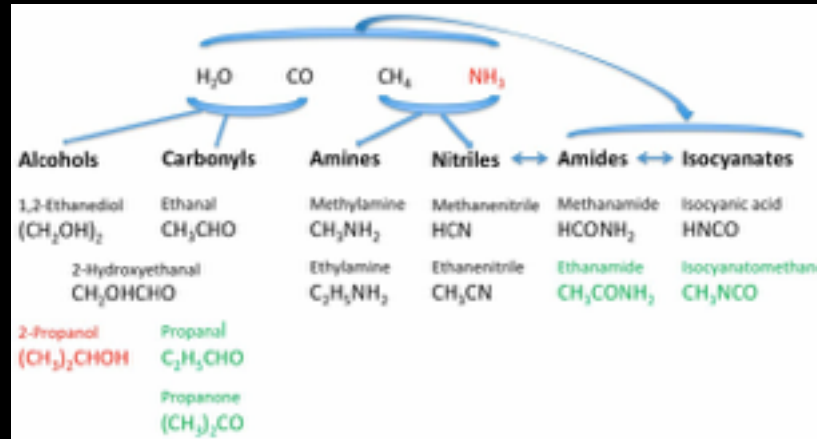
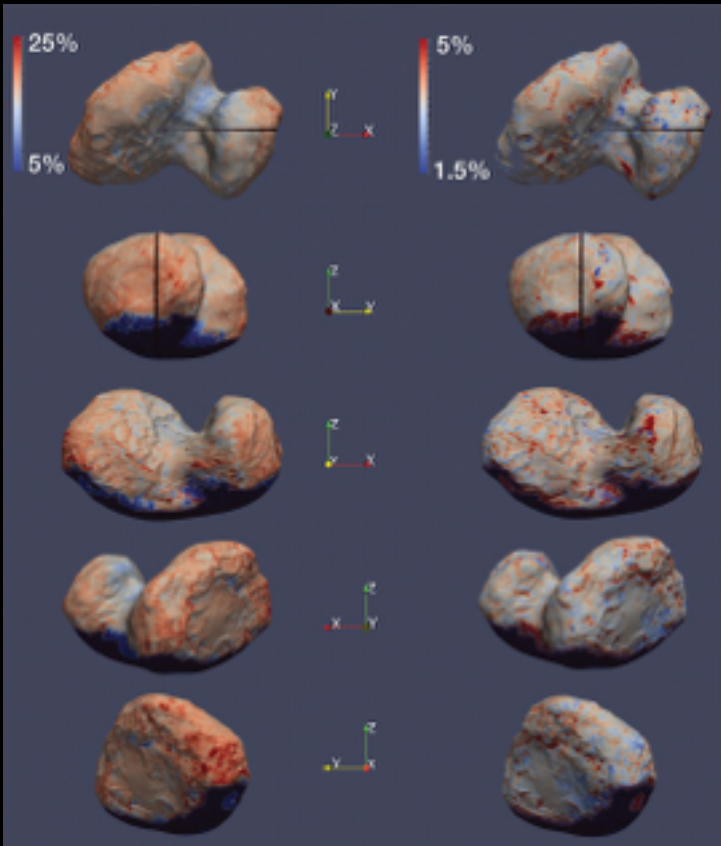
Porosity: 70-75%

Escape velocity: 1 m/s

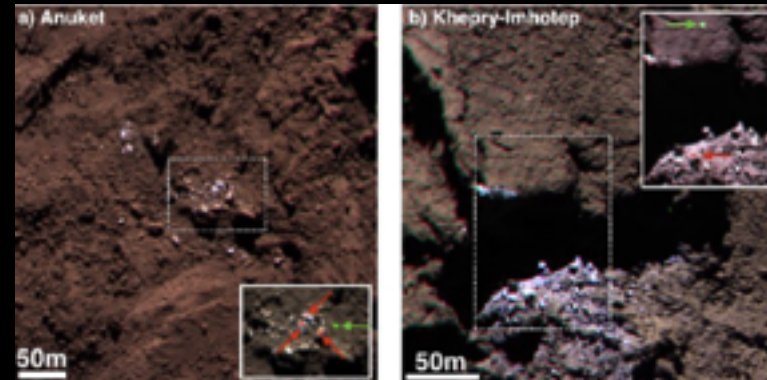
But why so dark?



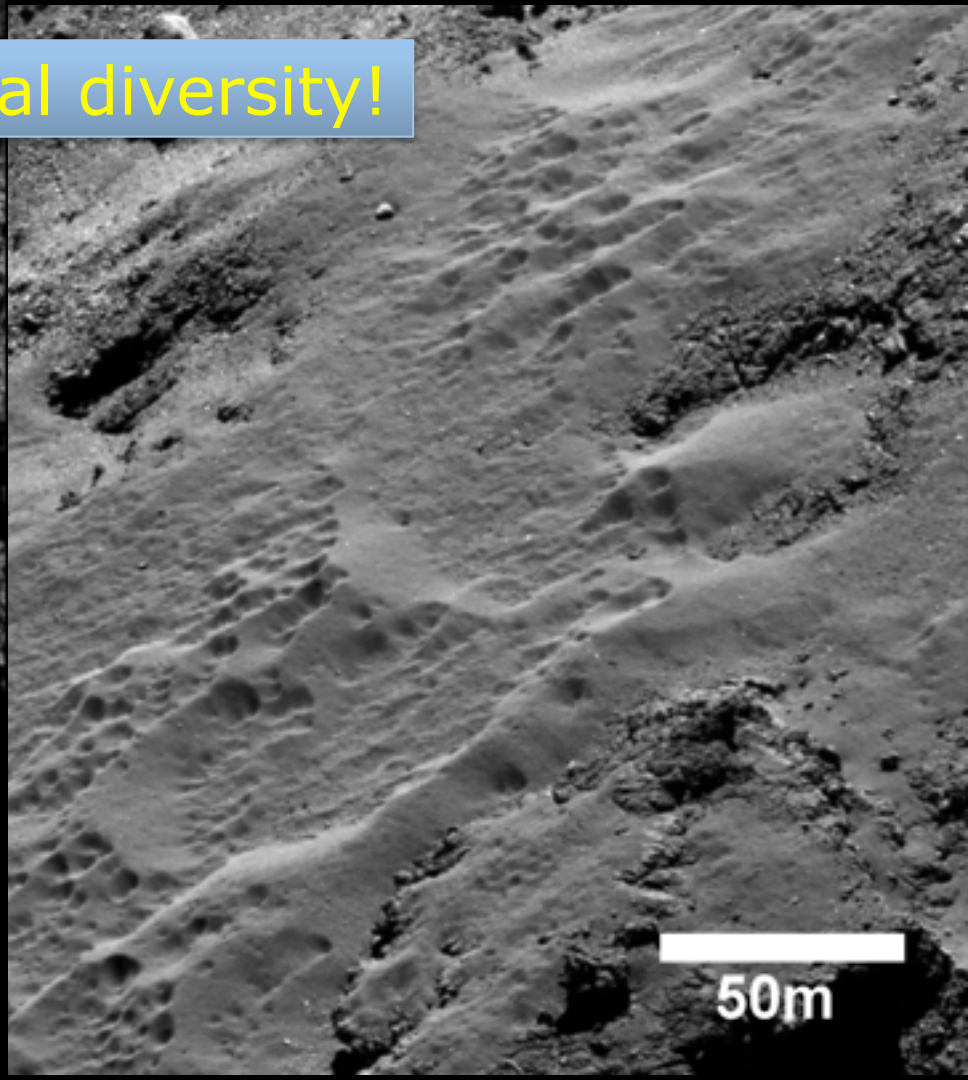
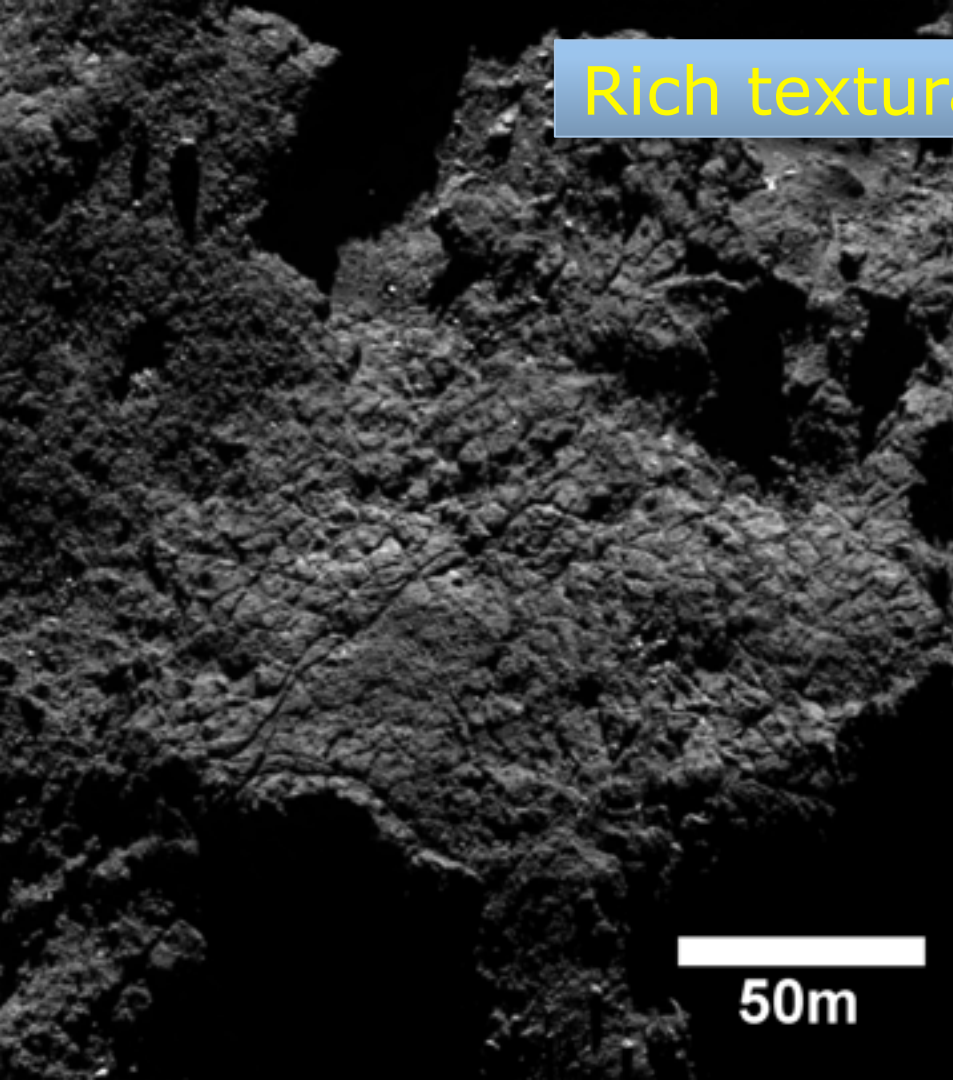
An Organics-rich dry surface...



Except for scattered bright boulders



Rich textural diversity!



Dust-covered regions

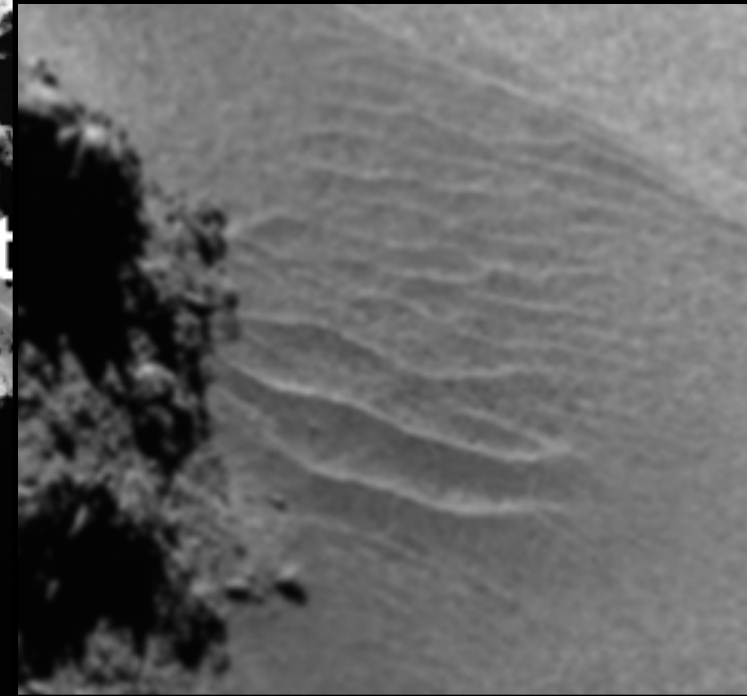
Ash

Ma'at

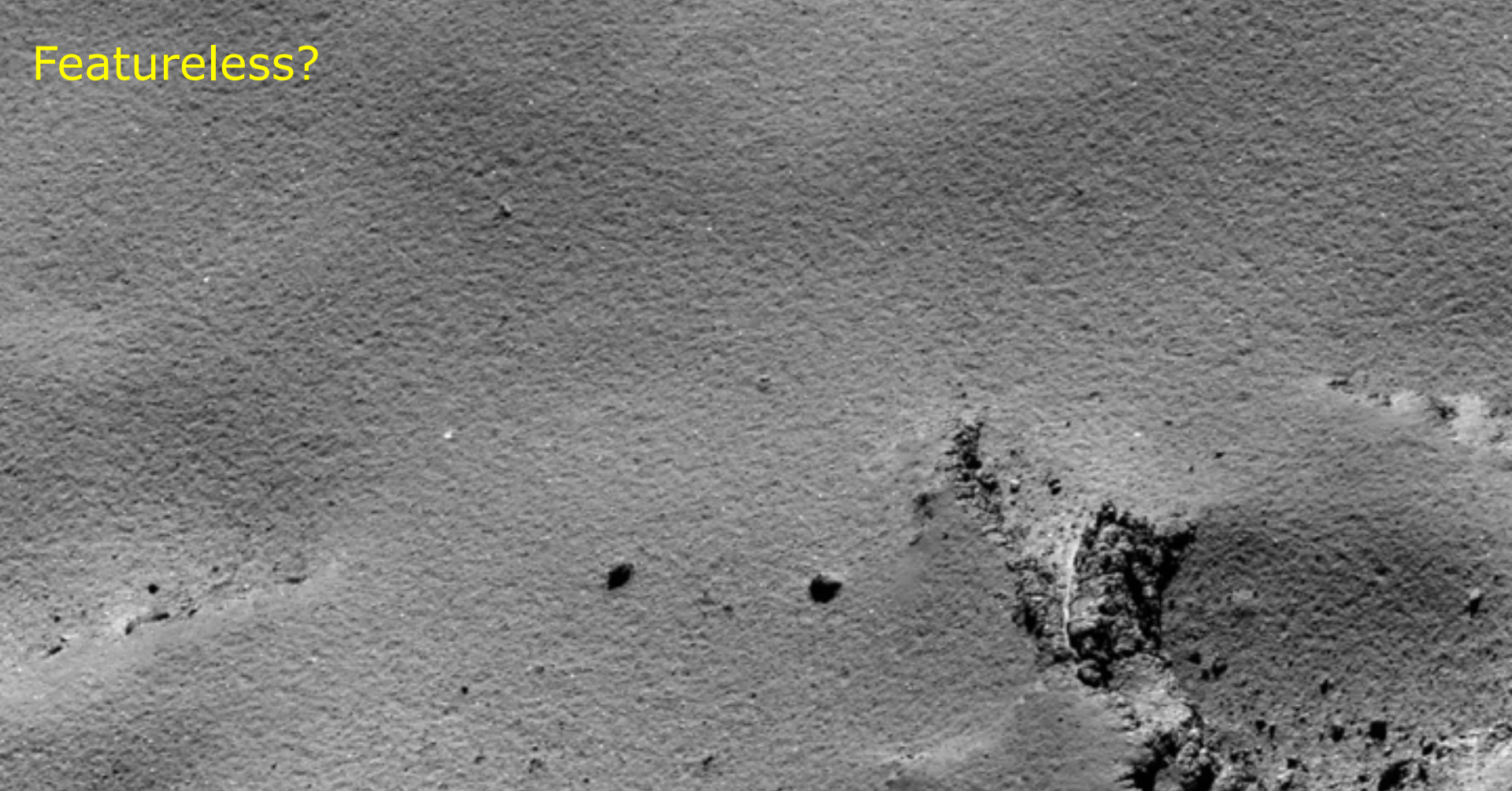
Dust-covered regions

Ash

Ma'at



Featureless?



No! as Philae has shown...



Source of surface dust?

Pre-perihelion



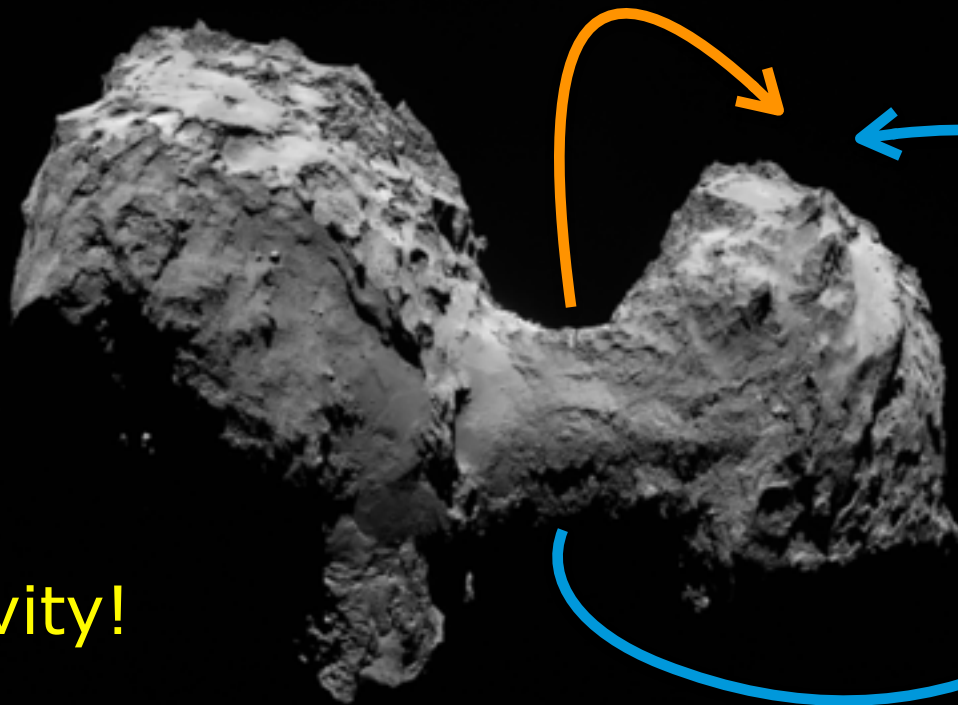
Source of surface dust?



Pre-perihelion

Activity!

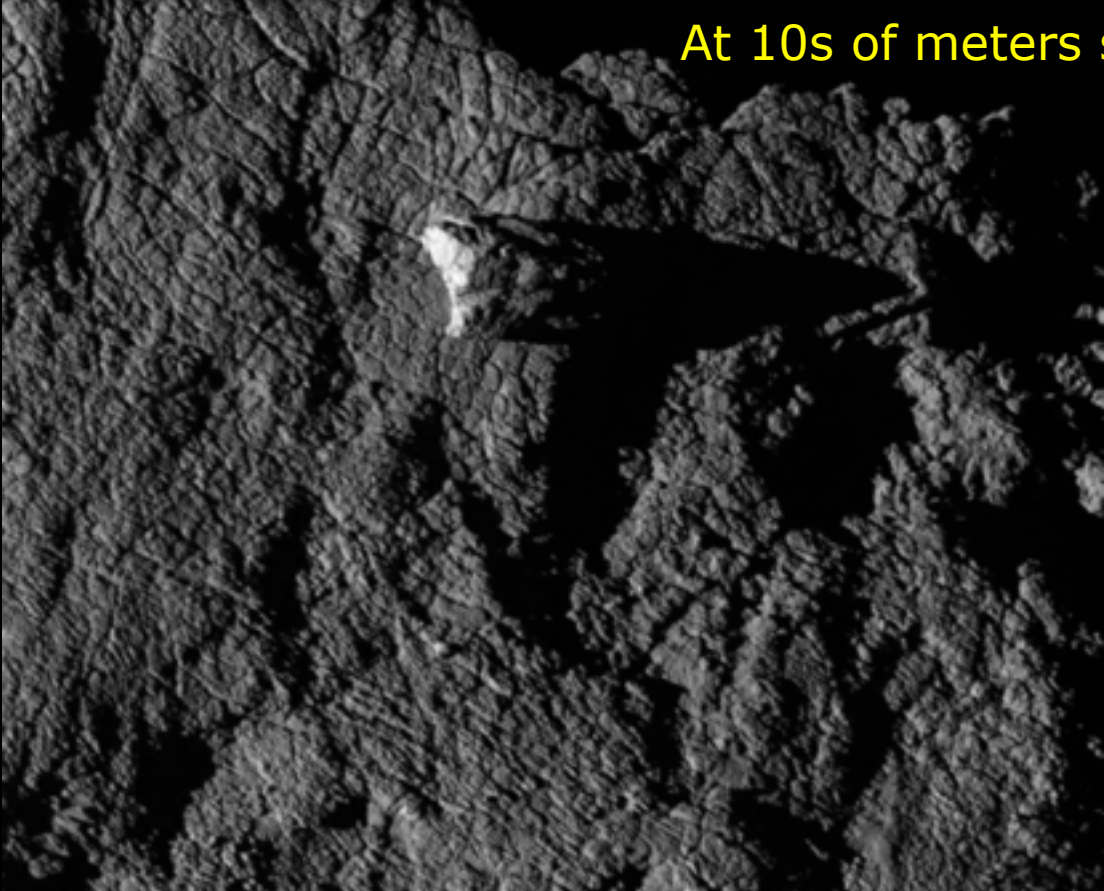
Post-perihelion

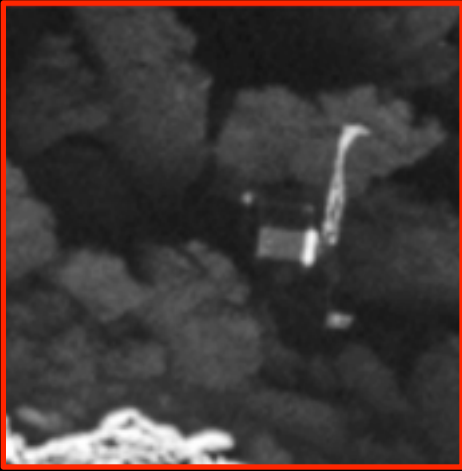


Consolidated/FRACTURED materials



At 10s of meters scale...

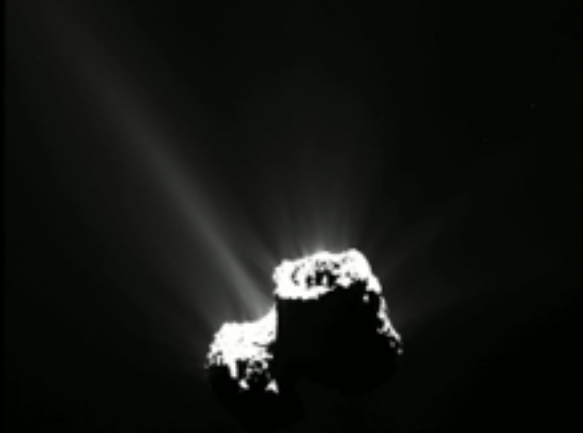




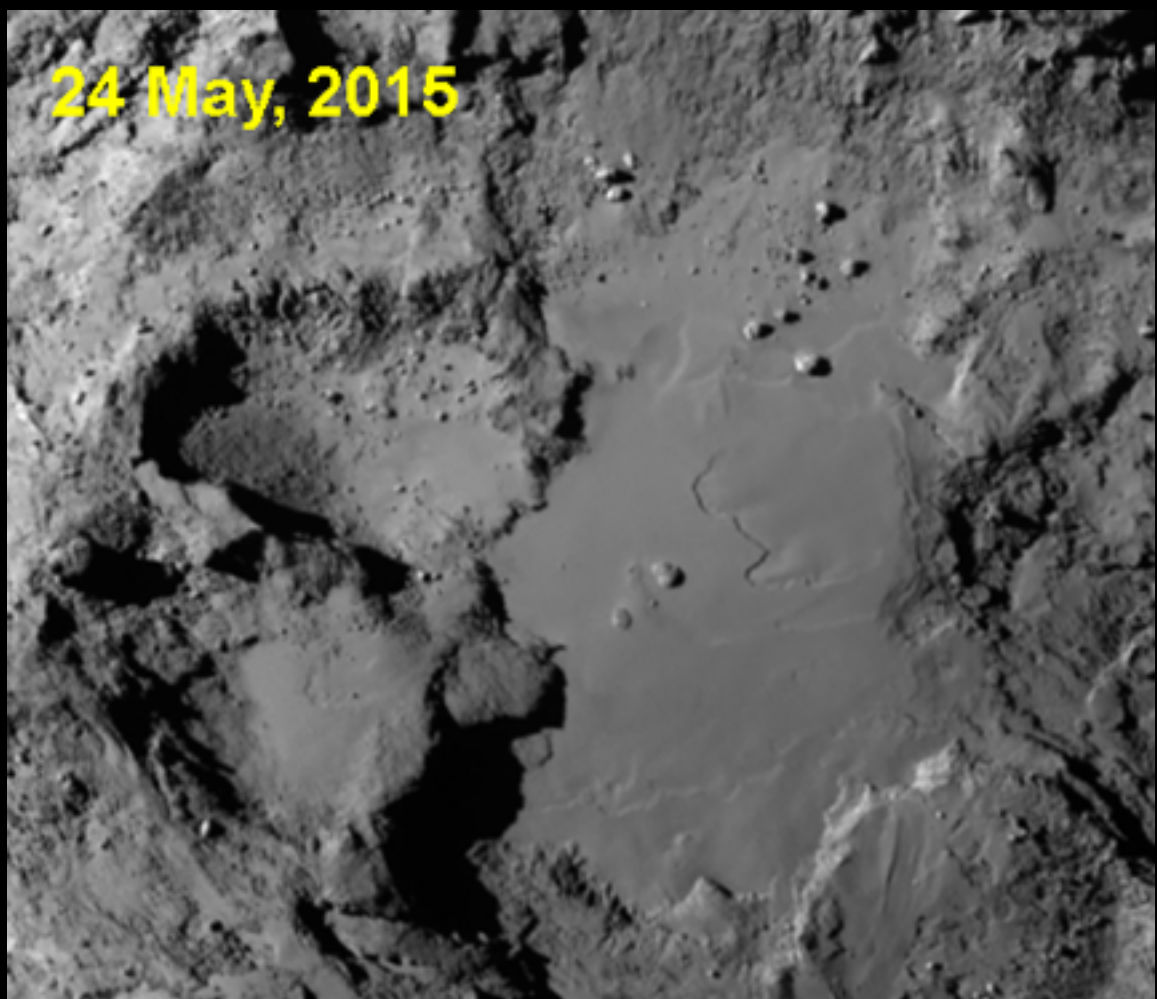
Smooth terrains (Imhotep)



The surface is active at
perihelion!



24 May, 2015



Pit

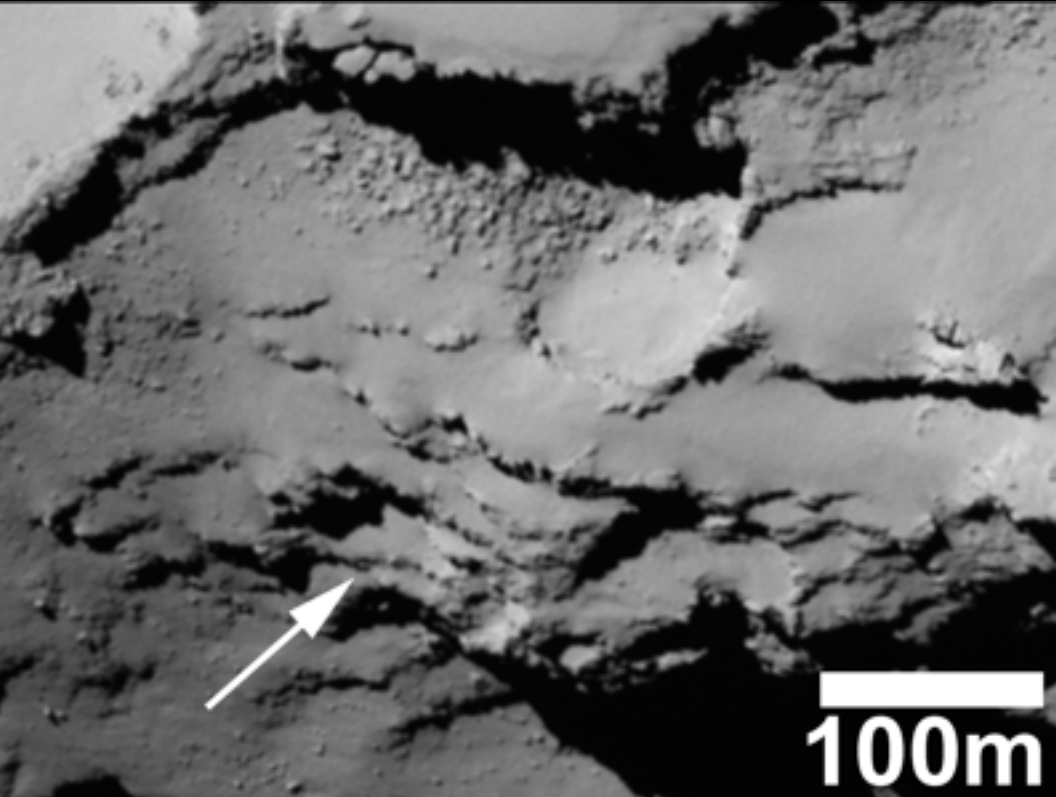


OSIRIS image for pits
Please contact Holger to acquire



A layered World!

Rosetta



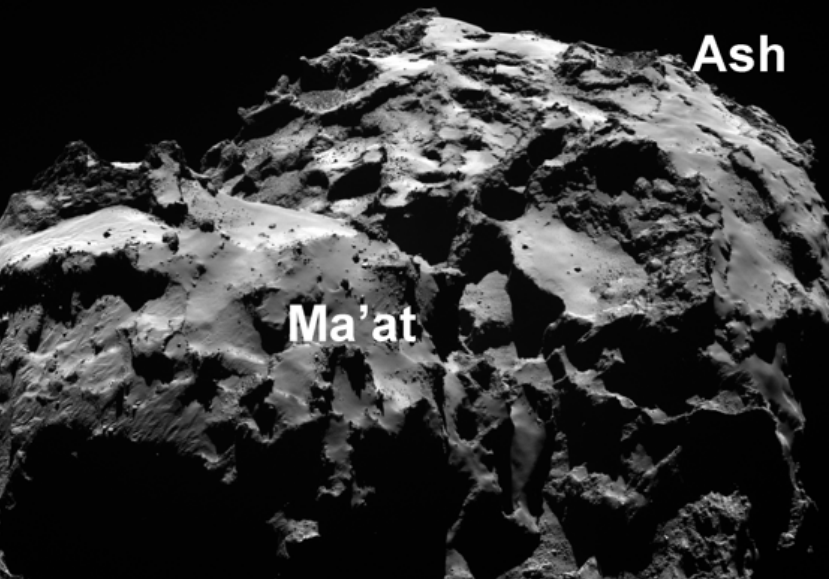
ROLIS image @ Abydos
Please contact Stefano to acquire

Philae

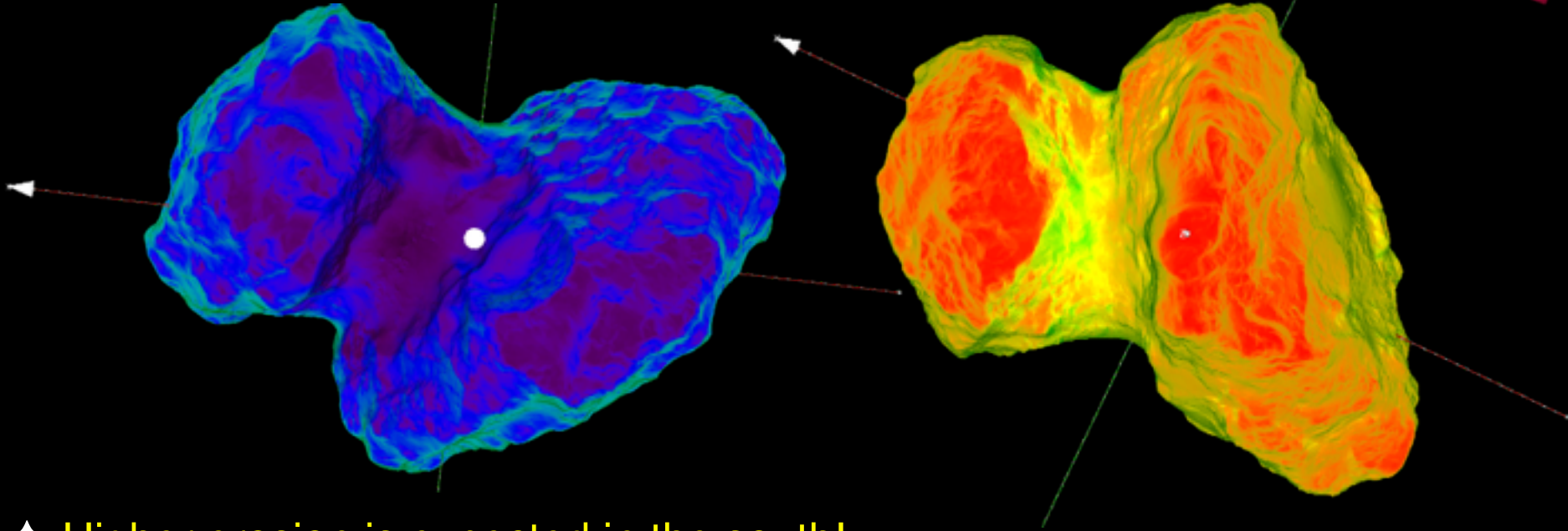
Looking at the south...

A clear dichotomy!

but why?



The southern summer is shorter than the northern summer but is more intense

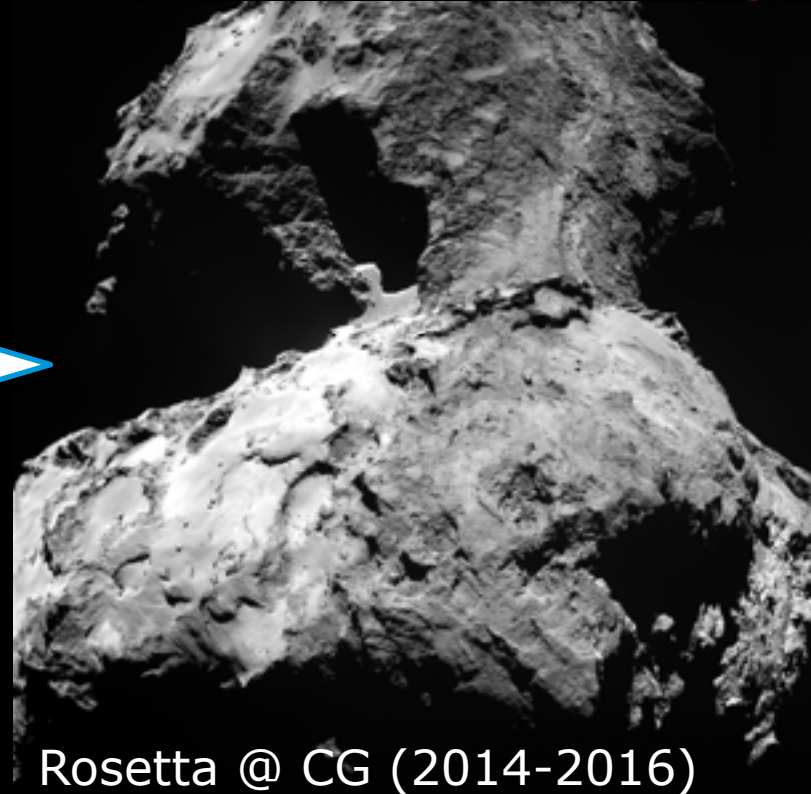
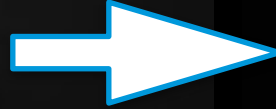


✦ Higher erosion is expected in the south!

It has been a long journey....and a rich legacy...

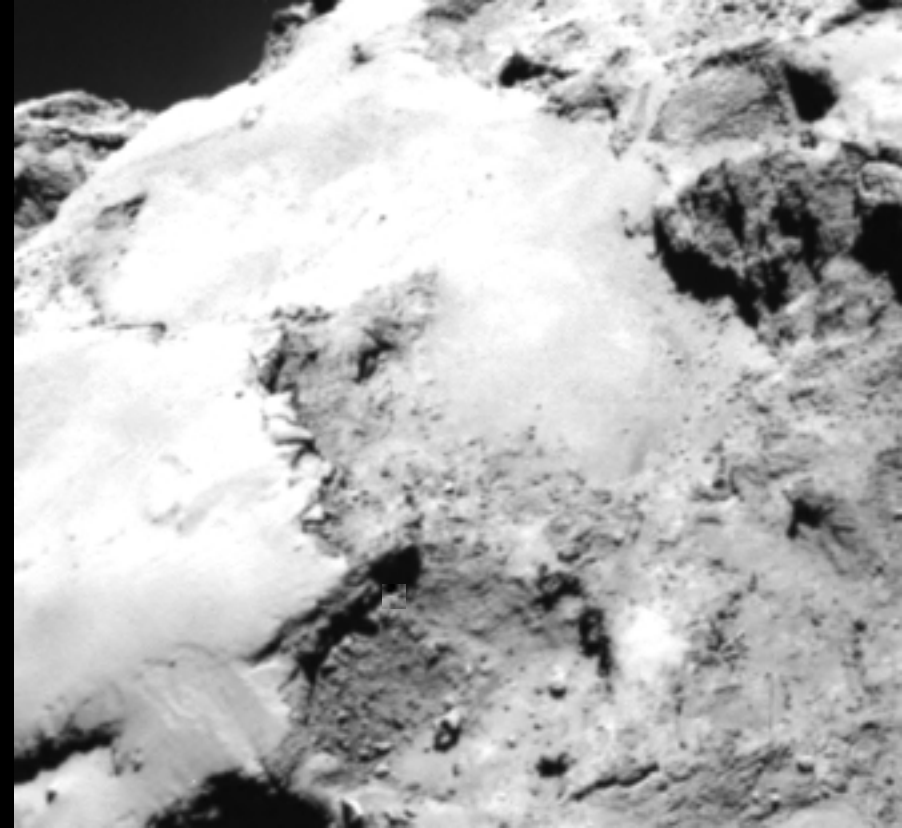


Giotto @ Halley (1986)

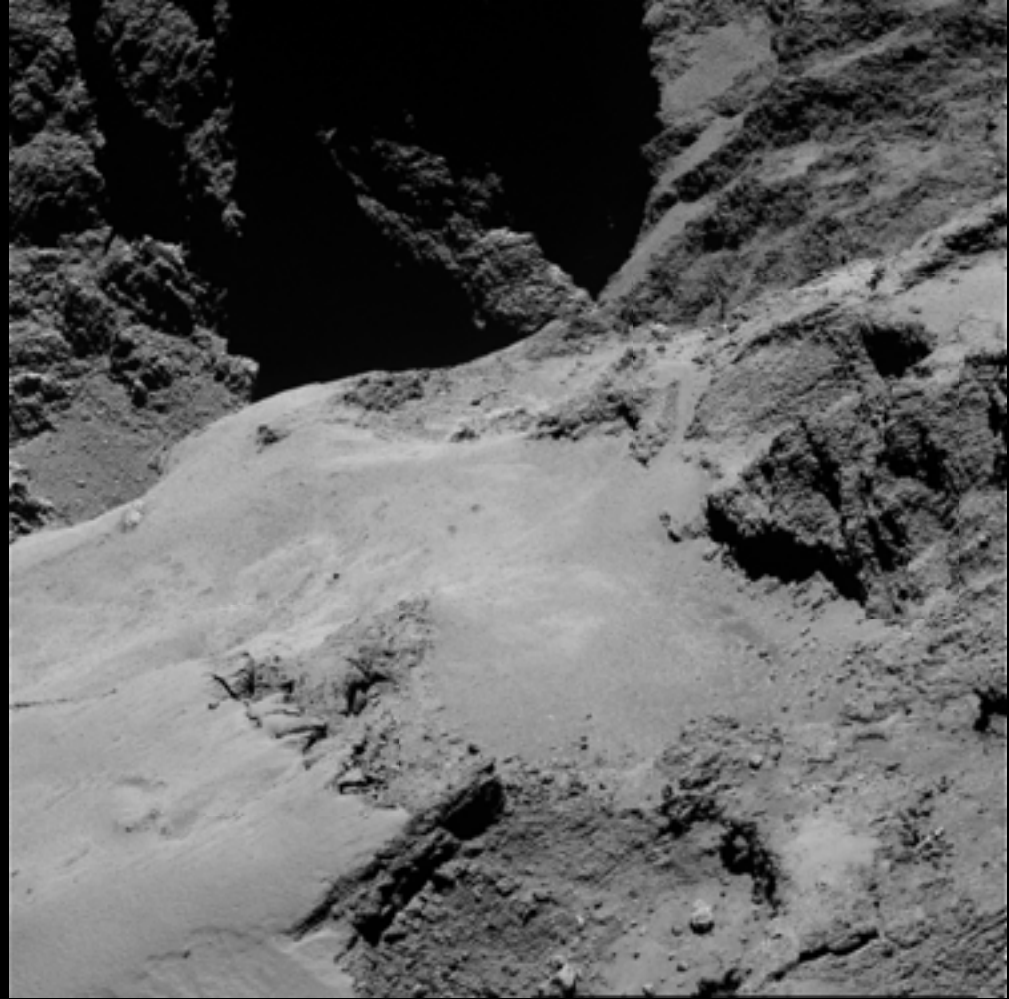


Rosetta @ CG (2014-2016)

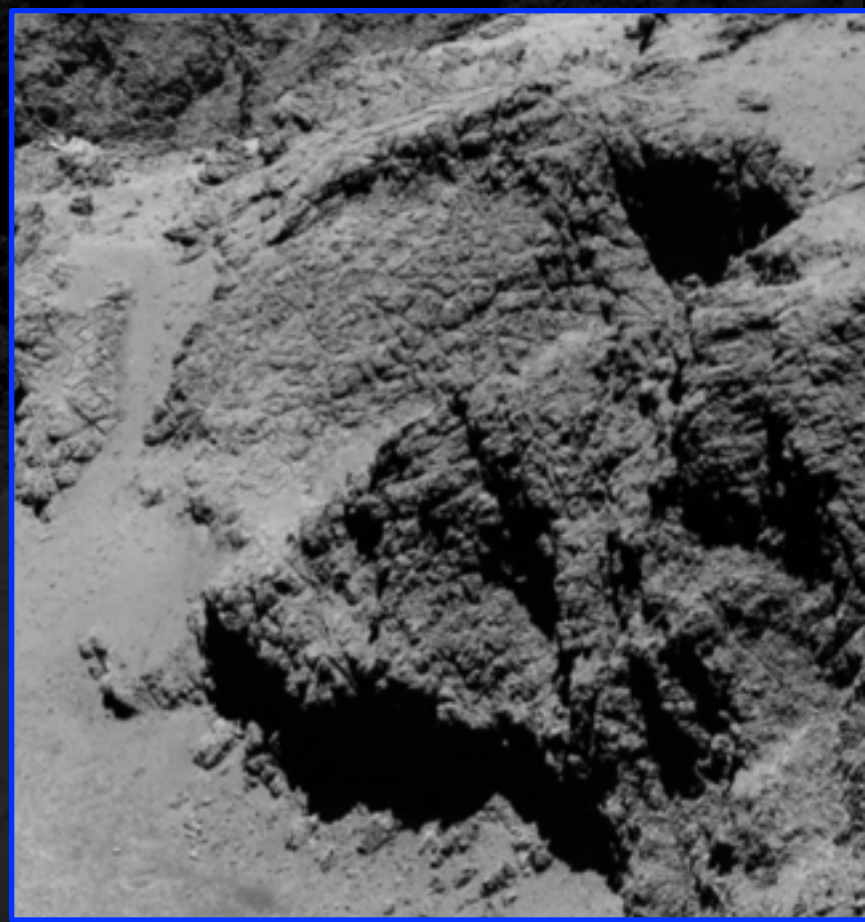
It has been a long journey....and a rich legacy...



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and a rich legacy...



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and a rich legacy...





stay tuned for more...



Summary



1. Surface shows a rich textural diversity including many unique features
2. Surface is dry, organic-rich and heavily fractured and layered at all scales.
3. Clear dichotomy between north and south due to seasonal patterns of insolation, something that has been observed on a comet for the first time
4. Consolidated crust that is probably covered by a thin coating of low thermal inertia dust yet most probably overlies more porous and fluffy materials.
5. The landing of Philae may not have gone to plan but in return we ended up a heavily shadowed area devoid of dust that probably represents one of the least altered surfaces we could have wished for.
6. Thanks to Rosetta, we will soon have a new chapter in planetary geology textbooks on “geology of comets”