

Asteroid (2867) Steins

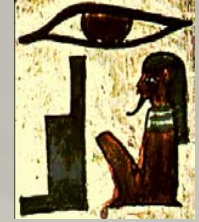
H. Uwe Keller and the OSIRIS Team

OSIRIS Principal Investigator, Max-Planck-Institut für Sonnensystemforschung,
Germany



Rosetta Steins fly-by Press Conference
Darmstadt, ESA/ESOC, 6 September 2008

OSIRIS



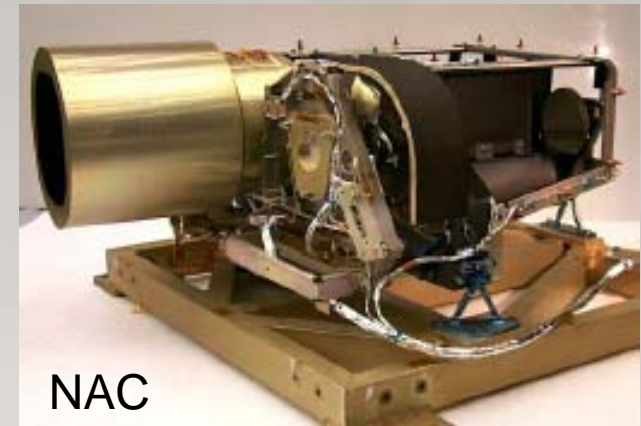
2 high performance cameras

- NAC and WAC
- Optimized for comet observations
- 23 filters from 250 to 1000 nm (UV to IR)

Built by European consortium from:

- France, Italy, Spain, Sweden, ESA, Germany

ESA ©2008 MPS for OSIRIS Team
MPS/UPD/LAM/IAA/RSSD/INTA/UPM/DASP/IDA



NAC



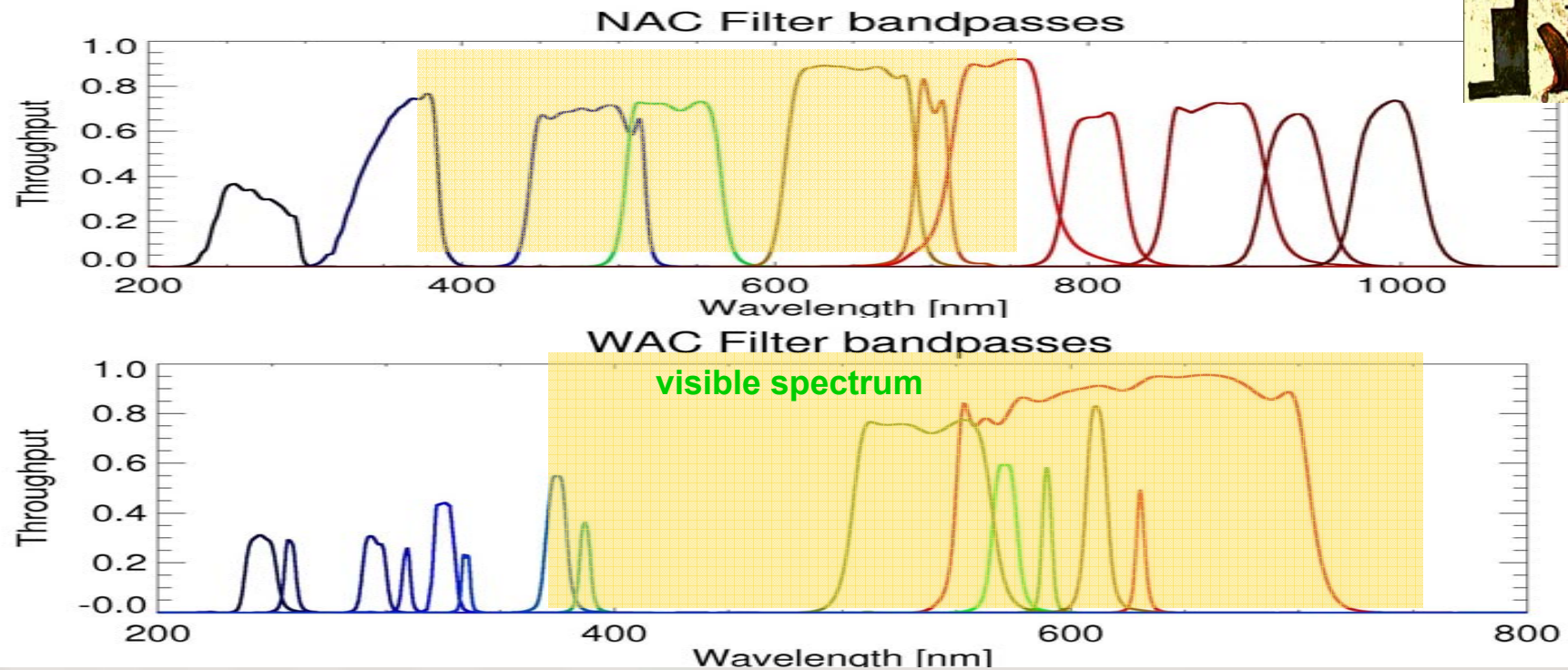
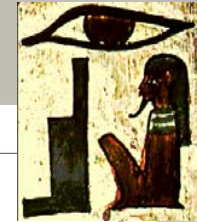
WAC

OSIRIS – Institutes



MPS	Max-Planck-Institut für Sonnensystemforschung, Katlenburg-Lindau, Germany
UPD	University of Padova, Padova, Italy
LAM	Laboratoire d'Astrophysique de Marseille, Marseille, France
IAA	Instituto de Astrofísica de Andalucía - CSIC, Granada, Spain
RSSD	Research and Scientific Support Department, ESTEC (ESA), Noordwijk, The Netherlands
INTA	Instituto Nacional de Técnica Aeroespacial, Torrejon de Ardoz, Spain
UPM	Universidad Politécnica de Madrid, Madrid, Spain
DASP	Department of Astronomy and Space Physics, Uppsala, Sweden
IDA	Institut für Datentechnik und Kommunikationsnetze, Braunschweig, Germany

OSIRIS Performance

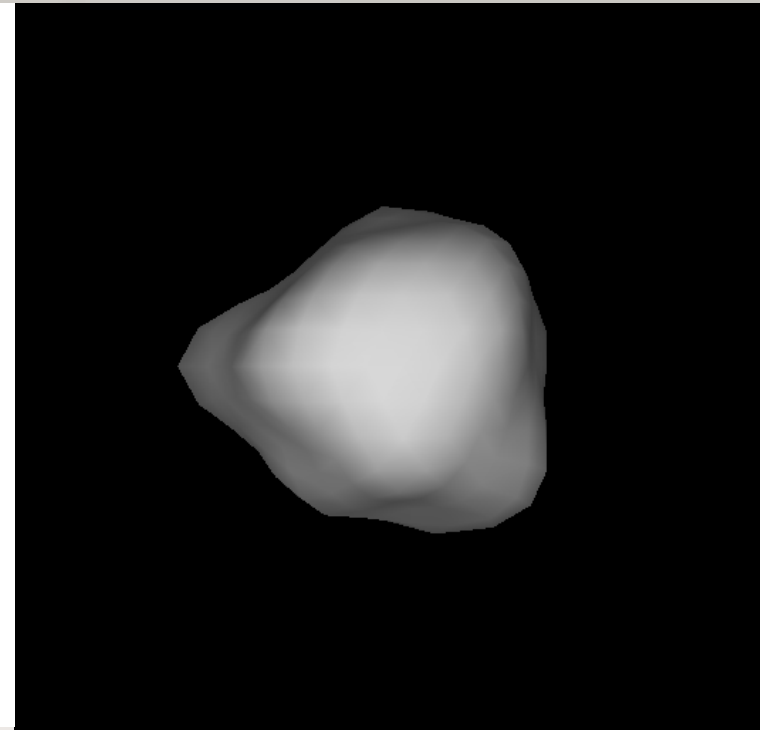
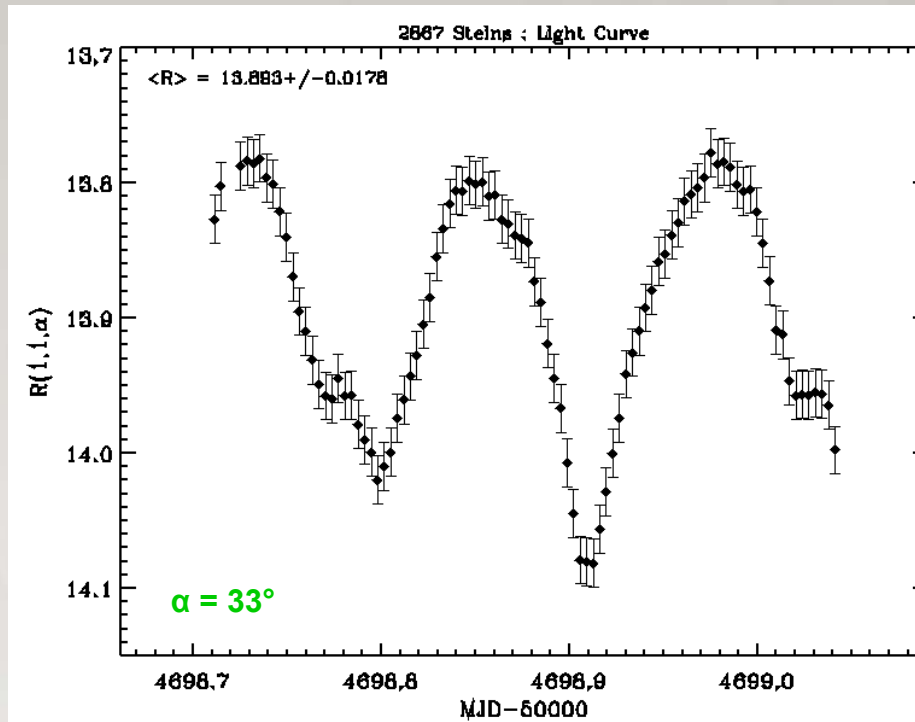


	Resolution (2 pixels)	Field of view	Resolution from 800 km distance (2 px)	Filters
NAC	8 arcsec (40 μ rad)	2.2° (2024 x 2024 px)	32 m	12 broad band
WAC	42 arcsec (200 μ rad)	12° (2024 x 2024 px)	160 m	12 narrow and 2 broad band

Light Curve and Modelled Shape



OSIRIS Observations



Distance to Steins 12 Mio. km on 20. Aug. 2008

Shape model of Steins

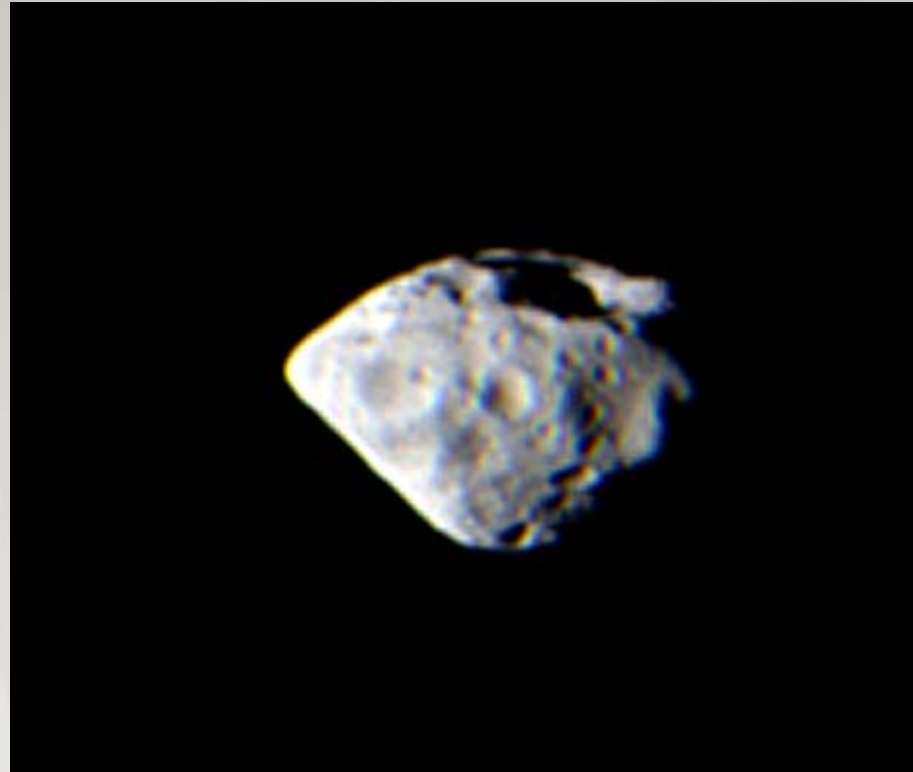
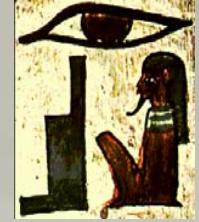
OSIRIS Steins Fly-by



Details

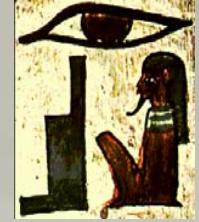


Colour (preliminary)



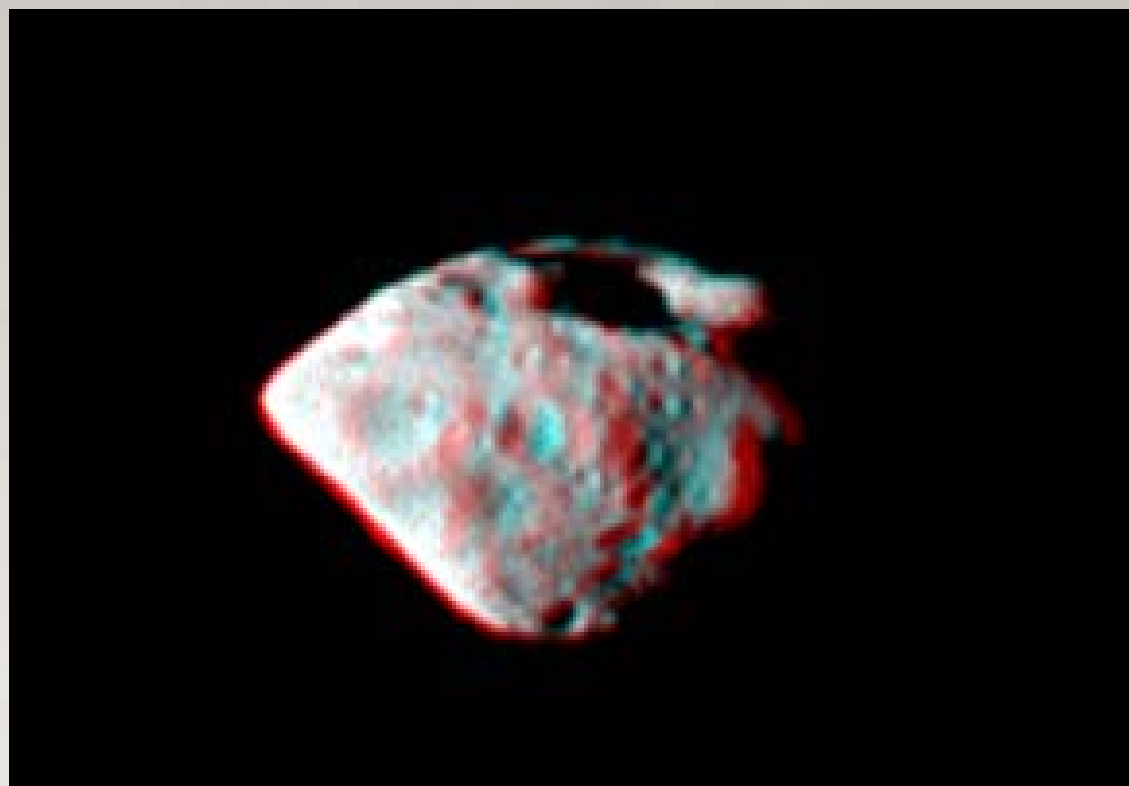
More to come from NAC images

Asteroid Steins Fly-by Movie

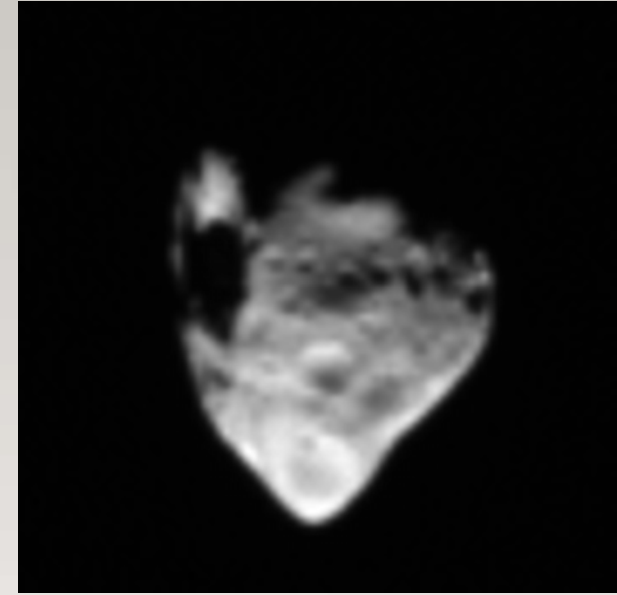
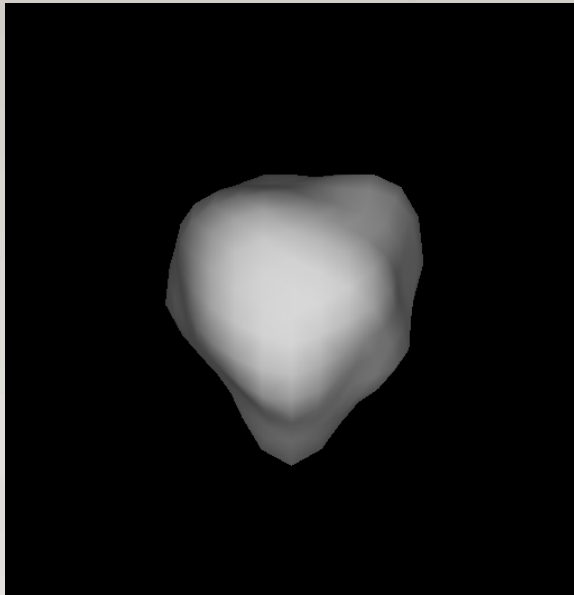
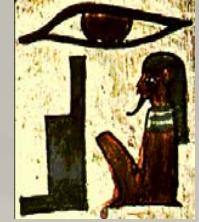


Rosetta Steins flyby, 05 Sep 2008

Anaglyph

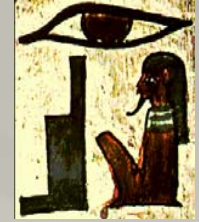


Comparison of Model with Reality



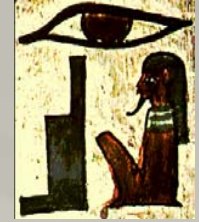
There is an excellent agreement with the predicted modeled shape based on Spitzer, ground based, and OSIRIS observations

Preliminary Results



- Shape and Size
 - 5.9 x 4.0 km, equivalent to 5.0 km effective radius (close to prediction)
 - diamond shape (a new jewel in the solar system)
- Albedo (visual) 0.35 ± 0.05
 - essentially grey colour
- Craters
 - large crater dominates (~2 km diameter) the northern part
 - chain of about 7 craters (catanae)
 - complex collisional history, craters of different ages
- Regolith cover inferred from degraded craters

What to Expect



- Mineralogy
 - comparing to meteorite spectra using also NAC data
- Detailed topography
 - based on accurate shape
- Surface properties (regolith)
 - based on accurate photometric properties
- Age determination
 - based on crater counting
- Spin axis orientation

2867 Steins will be one of the best characterized asteroids