

Rosette Nebula NGC 2244

# Cosmology/Astrophysics News

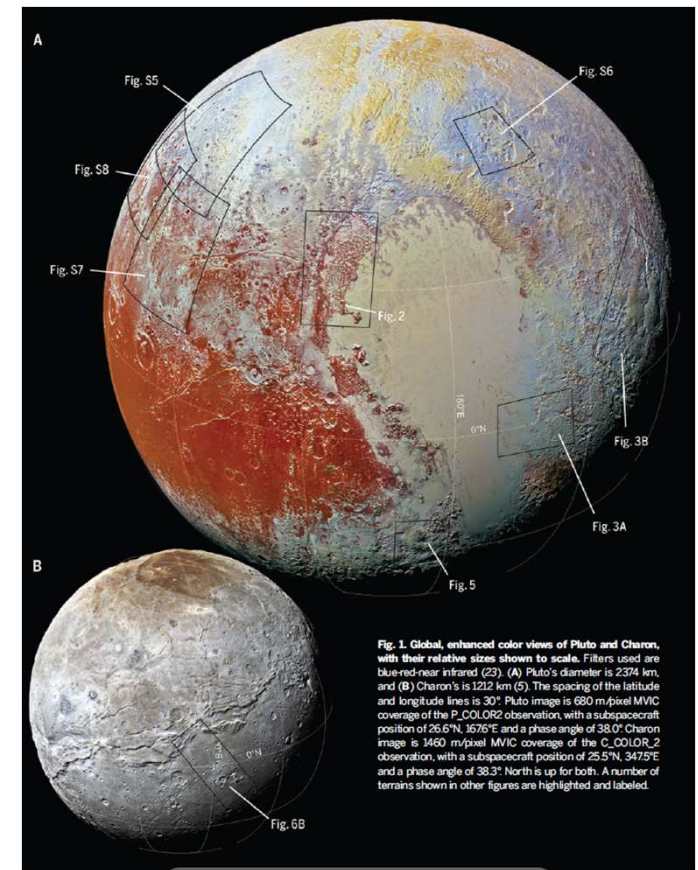
April 20, 2016

for Rose City Astronomers SIG

<http://101iq.com/RCA>

# Science – March 18, 2016

- Methane-sniffing mission heads to Mars – 7 month trip for European/Russian Trace Gas Orbiter
  - <http://www.sciencemag.org/news/2016/03/methane-sniffer-its-way-mars>
- Giant atom-smasher gears up to chase whiff of new physics – hints of new particle: another higgs, sbino, axion, new Z boson, ...?
  - <http://science.sciencemag.org/content/351/6279/1248>
- Atmosphere of Pluto as observed by New Horizons
  - <http://authors.library.caltech.edu/65692/2/Gladstone-SM.pdf>
- The small satellites of Pluto as observed by New Horizons
  - <http://www.media.inaf.it/wp-content/uploads/2016/03/paper-02.pdf>
- Pluto's interaction with its space environment: Solar wind, energetic particles, and dust
  - <http://www.media.inaf.it/wp-content/uploads/2016/03/paper-03.pdf>
- Surface compositions across Pluto and Charon
  - <http://www.media.inaf.it/wp-content/uploads/2016/03/paper-04.pdf>
  - <http://doi.org/bdg9>
- The geology of Pluto and Charon through the eyes of New Horizons
  - <http://www.media.inaf.it/wp-content/uploads/2016/03/paper-05.pdf>
  - <http://doi.org/bdg8>



# Nature – March 24, 2016

- Cassini aids hunt for Planet Nine
  - <http://www.nature.com/nature/journal/v531/n7595/full/531417e.html>
- Particle promise
  - <http://go.nature.com/pbxwl2>
- The black-hole collision that reshaped physics
  - <http://www.nature.com/news/the-black-hole-collision-that-reshaped-physics-1.19612>
- Lunar true polar wander inferred from polar hydrogen
  - <http://www.nature.com/nature/journal/v531/n7595/full/531455a.html>
  - <http://www.nature.com/nature/journal/v531/n7595/full/nature17166.html>
- Acceleration of petaelectronvolt protons in the Galactic Centre
  - <http://www.nature.com/nature/journal/v531/n7595/full/nature17147.html>

# Science – March 25, 2016

- Hubble unveils monster stars - >100 solar masses in star cluster R136
  - <http://www.sciencemag.org/news/2016/03/hubble-unveils-monster-stars>
- Crunch time for dark matter hunt – no WIMPs found yet
  - <http://science.sciencemag.org/content/351/6280/1376>
- Large-scale magnetic fields at high Reynolds numbers in magnetohydrodynamic simulations – Sun's magnetic field..
  - <http://science.sciencemag.org/content/351/6280/1427>

# Nature – March 31, 2016

- ALMA sees planet formation around HL Tau 450 light years away
  - <http://arxiv.org/abs/1603.03731>
- Japan's JAXA (Astro-H) satellite may be lost
  - <http://go.nature.com/jlkhvg>
- Ceres north polar area has lots of Hydrogen and probably water per Dawn spacecraft
- R-process enrichment from a single event in an ancient dwarf galaxy – heavier element formation
  - <http://arxiv.org/abs/1512.01558>

# Science – April 1, 2016

- Sandy ripples point to Mars's past - dunes
  - <http://www.sciencemag.org/news/2016/03/sandy-ripples-point-mars-s-past>
- An odd one out – oxygen rich white dwarf found
  - <http://d2ufo47lrtsv5s.cloudfront.net/content/352/6281/37>
  - <http://d2ufo47lrtsv5s.cloudfront.net/content/352/6281/67>

# Nature – April 7, 2016

- Controversial dark-matter claim faces ultimate test
  - <http://www.nature.com/news/controversial-dark-matter-claim-faces-ultimate-test-1.19684>
- Supernovae in the neighbourhood – Fe 60 may have influenced evolution
  - <http://www.nature.com/nature/journal/v532/n7597/full/532040a.html>
  - <http://www.nature.com/nature/journal/v532/n7597/full/nature17196.html>
  - <http://www.nature.com/nature/journal/v532/n7597/full/nature17424.html>
- 17 billion solar mass hole in a group galaxy with a diffuse core (in NGC 1600)
  - <http://www.nature.com/nature/journal/vaop/ncurrent/full/nature17197.html>

# Science – April 8, 2016

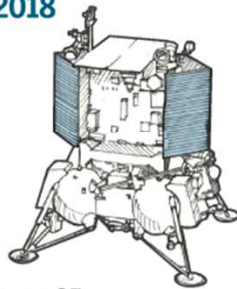
- Poised for liftoff – Russia planning space missions
  - <http://science.sciencemag.org/content/352/6282/138>

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## Russia's giant leap

After a 40-year drought, Russia's looking to get back into the lunar game with five missions over 8 years starting in 2018.

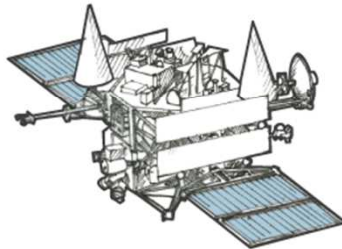
2018



**Luna-25**

Lander will test technology for a soft set-down near the south pole.

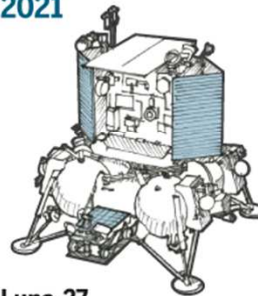
2020



**Luna-26**

Orbiter with neutron detector will map subsurface ice.

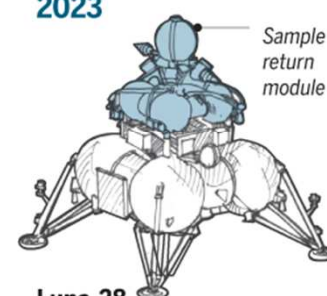
2021



**Luna-27**

Effort with Europe will drill into south pole and probe atmosphere.

2023

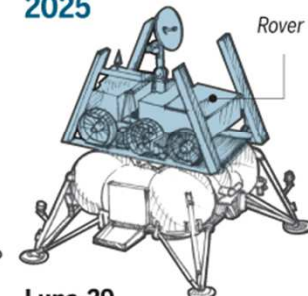


**Luna-28**

Sample return mission will bring back material from south pole.

Sample return module

2025



**Luna-29**

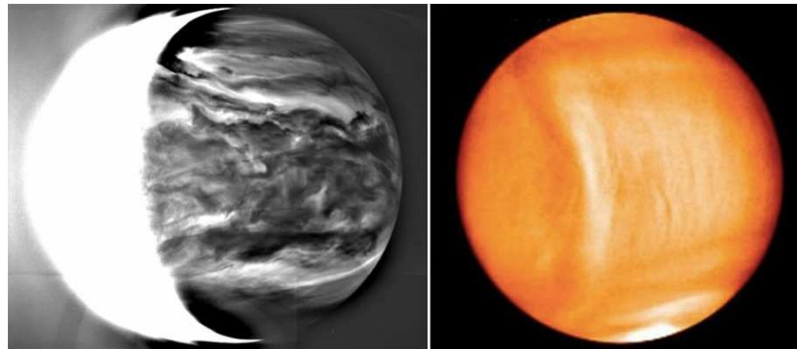
Rover will set the stage for cosmonaut missions and future moon base.

Rover



# Nature – April 14, 2016

- Black-hole disk launches jet – at core of Cygnus A
  - <http://www.nature.com/nature/journal/v532/n7598/full/532150d.html>
- A map of the large day-night temperature gradient of a super-Earth exoplanet
  - <http://www.nature.com/nature/journal/v532/n7598/full/nature17169.html>
- Rescued Akatsuki spacecraft delivers first results from Venus
  - <http://www.nature.com/news/rescued-japanese-spacecraft-delivers-first-results-from-venus-1.19723>



# Scientific American – April 2016

- April Showers Bring May Meteorites – you may have tiny ones on your roof, use a magnet to find them – glassy crust
- Passengers Announced for NASA's Biggest Rocket 2018 - cubesats
- The Neutron Enigma – how long free neutrons last