National Aeronautics and Space Administration

Eyes on Comet ISON

COMING THIS FALL — **A pristine visitor from the Oort Cloud, sungrazing comet ISON will either sizzle as a spectacular sky show or fizzle as it is torn apart by the sun. Join Earth-based astronomers, backyard skywatchers and an unprecedented fleet of NASA spacecraft in watching ISON's perilous journey around the sun.**

Encounter

Will ISON Survive?

28 Nov. 2013

ISON plunges through the solar atmosphere. Most sungrazers are torn apart by the sun's intense gravity and heat, but some survive -- emerging in spectacular form.

Who Can See It?

- You -- With binoculars or telescopes in mid-November.
- Ground-based observatories in the Northern Hemisphere.
- More than a dozen NASA spacecraft, including the ISS astronauts.

SCENARIO 1

Fizzle: ISON evaporates under intense tidal forces and solar radiation.

SCENARIO 2

Break-Up: ISON emerges in smaller chunks. (Could happen at any time.)

SCENARIO 3

Sizzle: ISON survives and emerges so bright it may be visible on Earth in daylight.

Warning: Do not look directly at the sun, especially through telescopes or binoculars.

WHO'S WATCHING?

Solar Dynamics Observatory

(SDO)

Keeping the sun under continuous observation since 2010.

Solar TErrestrial RElations Observatory

(STEREO)

Twin observatories with current views of the side and back of the sun.

SOlar and Heliospheric Observatory

(SOHO)

Studying the sun from core to corona to solar wind.

Swift

Dedicated to gamma-ray burst science.

MESSENGER

First mission to orbit Mercury.

International Space Station

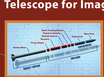
Unique platform to study Earth and space.

Balloon Rapid Response for ISON

(BRRISON)

First planetary science balloon in 50 years.

Far-ultraviolet Off Rowland-circle Telescope for Imaging and Spectroscopy



(FORTIS)

Recoverable sounding rocket space ultra-violet telescope.

Ground-Based Telescopes

ISON watchers: NASA Infrared Telescope Facility, Keck Observatory and many more.

Amateur Astronomers

Contribute to science discoveries.

Lunar Reconnaissance Orbiter

(LRO)

High-resolution studies of our moon from orbit.

Mars Reconnaissance Orbiter

(MRO)

Powerful instruments study the Red Planet from orbit.

Curiosity

Biggest, most advanced robotic rover in history.

Opportunity

Long-lived Red Planet rover.

Deep Impact

On an extended bonus science mission.

Hubble Space Telescope

Powerful science telescope studying space, near and far.

Spitzer Space Telescope

Observing the optically invisible Universe.

Chandra X-Ray Observatory

NASA's flagship mission for X-ray astronomy.

For all the latest on who's tracking ISON, visit solarsystem.nasa.gov/ison

Approach

ISON grows brighter as it approaches the sun, a cloud (or coma) of dust and gas expands around its nucleus and trails in a long dusty tail.

27 Nov. 2013: Sun-watching spacecraft (SDO, SOHO and STEREO) zero in for ISON's closest approach.

17 Nov. 2013: SOHO tracks ISON's plunge into the solar atmosphere.

15 Oct. - 24 Nov. 2013: STEREO, Juno and MESSENGER take a fresh look.

1 Oct. 2013: NASA's Mars team turns its cameras on ISON.

September - October 2013: BRRISON: First planetary science balloon in 50 years launches to study ISON.

July 2013: ISON lost to Earth in the glare of the sun.

13 June 2013: Spitzer makes infrared observations of the dust and gas emitted by ISON.

10 April 2013: Hubble's first look shows ISON's coma is bigger than Australia.

January - June 2013: Busy ground-based observing campaign underway.

30 Jan. 2013: Swift begins five-month ISON observation campaign.

17 - 18 Jan. 2013: Deep Impact finds ISON's tail is already 40,000 miles (64,400 km) long.

JUPITER

Discovery

Early discovery beyond the orbit of Jupiter creates a unique opportunity to watch ISON's transformation as it encounters the sun for the first time.

Who Saw It?

- Ground-based observers searching for mysterious objects.

24 Sept. 2012: C/2012 S-1 (ISON) discovery announced.

21 Sept. 2012: Russian astronomers Vitali Nevski and Artyom Novichonok discover ISON.

28 Jan. 2012: Pre-discovery image by Pan-STARRS.

28 Dec. 2011: First pre-discovery image by Mount Lemmon Survey at a distance of 8.7 AU (between the orbits of Jupiter and Saturn).

SATURN

Track ISON's Progress at:
eyes.jpl.nasa.gov and solarsystem.nasa.gov/ison

Join the Conversation on Twitter and Facebook:
#WillItBreakUp

www.nasa.gov