

# GLOBAL FRIENDSHIP THROUGH SPACE EDUCATION

# ASTRO NEWSLETTER

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Hello **Astro-Fans!**

We are back with our brand new design! This year marks the 10th birthday of Astro Newsletter. Hundreds of articles and photos have been shared with students and teachers via our Astro Newsletter over the last ten years. We look forward to reaching more students and teachers in the next ten years, and beyond.

During the 2015-2016 school year, we have conducted 19 videoconferences within our **Partner School Science Program (PSSP)** and 60 videoconferences within our **Future Explorers Program (FEP)**.

Last year, we have added a new topic to our curriculum called "**Planet Hunters**". This new topic is focused on Exo-Planets, planets beyond our own solar system. This year we have another new addition to our curriculum. We call it "**Mysterious Messengers**". It's about small Solar System bodies such as asteroids, comets, and meteoroids.

We wish you a successful school year and hope you have lots of fun in the PSSP and FEP. Also remember, we are always looking forward to receive your articles which we can share in our Astro Newsletter. Anything space related is welcomed.

## SPACE NEWS IN A FLASH

- A new Dwarf Planet joins the Solar System family
- Orionid Meteor Shower 2016
- Asgardia, the first ever space nation
- Planet Nine may be found next year
- The ExoMars spacecraft's crash landing
- Three astronauts launch toward International Space Station
- Possible clouds spotted on Pluto
- Juno in safe mode, doesn't gather data during Jupiter flyby

*Across the sea of space, the stars are other suns.*

*- Carl Sagan*

### **A new Dwarf Planet joins the Solar System family**

Scientists have identified a new dwarf planet in our Solar System, and it's lurking way out in the edges, some 13.6 billion km from the Sun. The Iowa-sized object - for now known as 2014 UZ224 - takes 1,100 years to complete a single orbit of the Sun, and could soon join the ranks of the five established dwarf planets in the Solar System: Ceres, Eris, Haumea, Makemake, and most famous of all, Pluto. Discovered by a team of undergraduate students led by physicist David Gerdes from the University of Michigan, 2014 UZ224 was pinpointed in an enormous map of galaxies created by a project called the Dark Energy Survey (DES).

(<http://www.sciencealert.com>)

### **Orionid Meteor Shower 2016**

The shower makes an appearance every year in October and November as Earth passes through the trail of debris left behind by Halley's Comet. Although the comet travels near Earth only once every 75 years, Earth crosses Halley's trail twice a year.

To see the meteors, prepare to be outside for a long time. Get comfortable in the darkest spot you can find, and allow at least a half hour for your eyes to adjust to the dark. Watching the sky with the naked eye works better than using binoculars or a telescope, because you're able to see more of the sky and catch sight of the quickly streaking meteors.

(<http://www.space.com>)



## Asgardia, the first ever space nation

Asgardia is the prototype of a free and unrestricted society which holds knowledge, intelligence and science at its core along with the recognition of the ultimate value of each human life. The essence of Asgardia is Peace in Space, and the prevention of Earth's conflicts being transferred into space. Who can be Asgardia Citizen? Any human living on Earth!

(<https://asgardia.space>)



## Three astronauts launch toward International Space Station

A few hours after docking to the International Space Station on Oct. 21, Expedition 49/50 Soyuz Commander Sergey Ryzhikov and Flight Engineer Andrey Borisenko of Roscosmos and Flight Engineer Shane Kimbrough of NASA, opened the hatch of their Soyuz MS-02 spacecraft and were greeted by station Commander Anatoly Ivanishin of Roscosmos and Flight Engineers Kate Rubins of NASA and Takuya Onishi of the Japan Aerospace Exploration Agency.

(<http://spaceref.com>)

## Planet Nine may be found next year

Astronomers could discover the solar system's mystery ninth planet by 2019, scientists have claimed. Dubbed Planet Nine, the elusive world is believed by many to be responsible for the strange shaped orbits of objects in the outer realms of the solar system, but it is yet to be seen. But with up to 10 research groups scouring the skies, astronomers believe it won't remain hidden for long and could be discovered in the next 16 months. The claims were made by astronomer Mike Brown, one of those who proposed the existence of the mystery world. Professor Brown told reporters: 'There are a lot of people looking, and we are trying as hard as we can to tell people where to look. We want it to be found.'

(<http://www.dailymail.co.uk>)

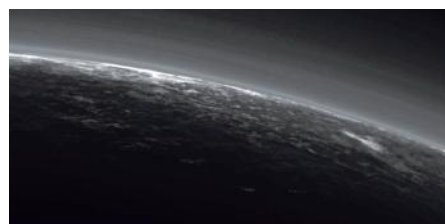
## The ExoMars spacecraft's crash landing

Europe and Russia's ExoMars lander may have suffered a computer glitch during its descent to Mars, ultimately causing it to crash-land into the planet's surface. As the lander fell, the mysterious software bug may have caused the vehicle to think it was closer to the ground than it actually was, a lead researcher with the European Space Agency suggests. That may be why the whole landing sequence was thrown out of whack. It's just a hunch, so the true cause of the crash is not yet known. But a software error is ultimately good news for the ExoMars mission — a joint venture between the European Space Agency and Roscosmos to search for signs of life on the Red Planet.

(<http://www.nature.com>)

## Possible clouds spotted on Pluto

Spotting shapes and forms in clouds is a fun pastime on Earth, but now scientists can say they've cloud-spotted on one of Earth's distant neighbors: Pluto. Previous observations established that Pluto hosts an atmospheric haze. The haze is extremely thin, however, whereas patches of particles or vapor that scientists would classify as clouds must be discrete, optically thick objects that block the surface.



To hunt for clouds, the New Horizons team looked at data from the Long Range Reconnaissance Imager (LORRI) and another instrument, the Multispectral Visible Imaging Camera. In high-resolution images, the team spotted several bright smudges at seemingly low altitudes that blocked Pluto's surface.

(<https://eos.org>)

## Juno in safe mode, doesn't gather data during Jupiter flyby

NASA's Juno Jupiter orbiter, already dealing with a thruster problem that postponed a key maneuver, went into a safe mode hours before a close approach to the giant planet. That safe mode means that Juno did not collect any data during the flyby.

The mission had originally planned not to collect science on the close approach. Instead, those plans called for Juno to fire its main engine to reduce the period of its orbit from the current 53.4 days to 14 days, allowing the main science phase of the mission to begin. However, NASA announced Oct. 14 that it had postponed the maneuver because of an issue with the thruster. The next opportunity to perform the maneuver will come on Juno's next close approach to Jupiter on Dec. 11.

Juno is the second of NASA's New Frontiers medium-class planetary science missions, after the New Horizons Pluto flyby mission.

(<http://spacenews.com>)

# SCHOOLS IN ACTION



**Hisar School, Istanbul**

Hisar School students have been busy with their Mission Patch designs for the past few weeks. As you can see, technology is a big part of the Future Explorers Program.



**ITK Büyükcü li, Izmir**

ITK students showed great teamwork and designed a single but huge Mission Patch. This is a patch you will want to check out at the Future Explorers Summit this year.



**Final School, Samsun**

Here you can see Final school students are fully focused on the quest for creating the best mission patches and after listening to their patch presentations I can honestly say. they did a great job!



**TAKEV, Izmir**

TAKEV students followed the Mission Patch presentation carefully and took notes. They did a great job at answering every single question correct and having fun the whole time! Thank you again.



**TED College, Malatya**

It was our first videoconference with TED College, Malatya and it was a blast! Once again, Welcome to the Future Explorers Program.



**U ur Schools, Izmir**

U ur School's students came to Space Camp Turkey for their Mission Patch presentations. So we thought, "Hey, why not take a selfie?" :)

## Astronomy Picture of the Day



M27: The Dumbbell Nebula

**Explanation:** The first hint of what will become of our Sun was discovered inadvertently in 1764. At that time, Charles Messier was compiling a list of diffuse objects not to be confused with comets. The 27th object on Messier's list, now known as M27 or the Dumbbell Nebula, is a planetary nebula, the type of nebula our Sun will produce when nuclear fusion stops in its core. M27 is one of the brightest planetary nebulae on the sky, and can be seen toward the constellation of the Fox (Vulpecula) with binoculars. It takes light about 1000 years to reach us from M27, shown above in colors emitted by hydrogen and oxygen. Understanding the physics and significance of M27 was well beyond 18th century science. Even today, many things remain mysterious about bipolar planetary nebula like M27, including the physical mechanism that expels a low-mass star's gaseous outer-envelope, leaving an X-ray hot white dwarf.