

GLOBAL FRIENDSHIP THROUGH SPACE EDUCATION

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ASTRO NEWSLETTER

Welcome to the fourth issue of our Astro Newsletter's 9th year. As GFTSE, we have been busy with videoconferences as well as a new educational packet that we are working on and plan to use next year!

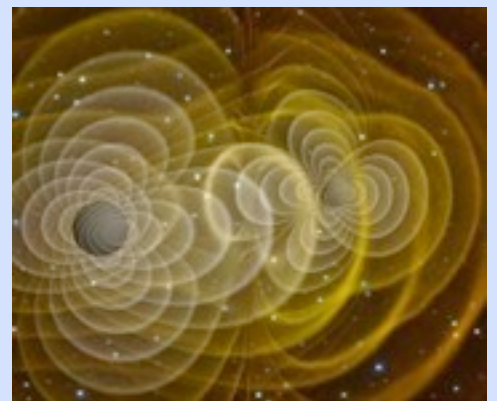
There's a lot of space related news happening all the time! Here's a quick breakdown of the past month's space news.

- Unmanned Cygnus cargo ship and supplies have arrived at the International Space Station. It is a resupply mission that will include an unprecedented fire experiment after the craft leaves the orbiting outpost.
- Japan lost track of its pricey black hole satellite. The ultra-high-tech "Hitomi" – or eye – satellite was supposed to be busy communicating from orbit by now, the Japan Aerospace Exploration Agency (JAXA) said, but no one can say exactly where it is at the moment.
- Two robotic spacecraft on March 14th began a seven-month journey to Mars as part of a European-Russian unmanned space mission to sniff out leads to life on the Red Planet. The ExoMars 2016 mission, is the first part of a two-phase exploration aiming to answer questions about the existence of life on Earth's neighbour. The TGO will examine methane around Mars while the lander, Schiaparelli, will detach and descend to the surface of the fourth planet from the Sun.

In this issue we wanted to focus on gravitational waves. Gravitational waves were predicted by Einstein's theory of general relativity in 1916, and now, almost exactly 100 years later, the faint ripples across space-time have been found. The advanced Laser Interferometric Gravitational-wave Observatory (aLIGO) has achieved the first direct measurement.

"We already have indirect evidence of gravitational wave emission from binary pulsars like the Hulse-Taylor system. But this aLIGO measurement provides the first direct detection and confirms what our modeling and simulation results have been suggesting - Einstein was right," said Christopher Fryer, Los Alamos National Laboratory Fellow and longtime researcher in this field.

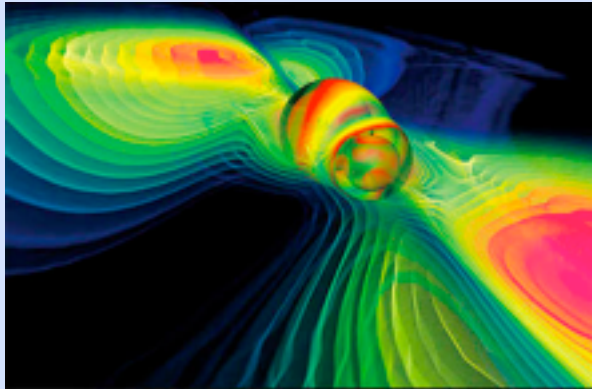
On the right is a simulation of two merging black holes, creating gravitational waves. Image courtesy of LIGO.



We wanted to share with you an article about Gravitational Waves which was written by Dalya Kinsizer from Hisar School, Istanbul, Turkey.

Gravitational Waves

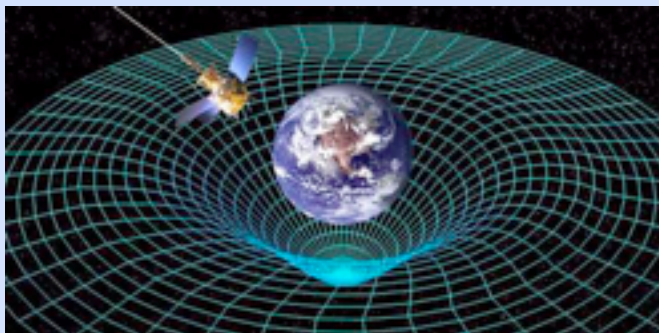
First of all what are gravitational waves and what do they do? Many of us are probably fans of Einstein and Einstein's general theory of relativity in the year 1916, mentions about the existence of gravitational waves and their abilities.



Well, it's proved currently by scientists that do research on LIGO. It has been spotted by a LIGO telescope in 2016. So what are they and what do they do? Gravitational Waves are waves of gravity and its genetics traveling around space in the speed of light. They are usually created by Black Holes being corrupted. They affect the space time. The most amazing fact is that Gravitational Waves will lead to many discoveries. It's not yet so much known, but as time goes and the searches continue scientists expect to learn more in a short period of time.

Since you now know what Gravitational Waves are, now let's learn more about the procedure of its existence. The first critical duty was to build a machine so sensible and gentle that could easily find the waves. Finally in a congress for the funds in 2008 which was 205 million they decided to build the LIGO. It was this instrument that detected a gravitational wave last fall.

Gravitational Waves and LIGO will help us discover more about gravity and spacetime. Gravitational Waves will lead to Gravitational Astronomy which will help us improve our



understanding of cosmos. Cosmos means the way the universe is in the vocabulary form but it is used in different science and observation branches. For example in physics it's used for mechanism and such. Gravitational Waves is just another beginning for us all. Might as well say a new maze for all of us to crawl our way to discoveries and knowledge!

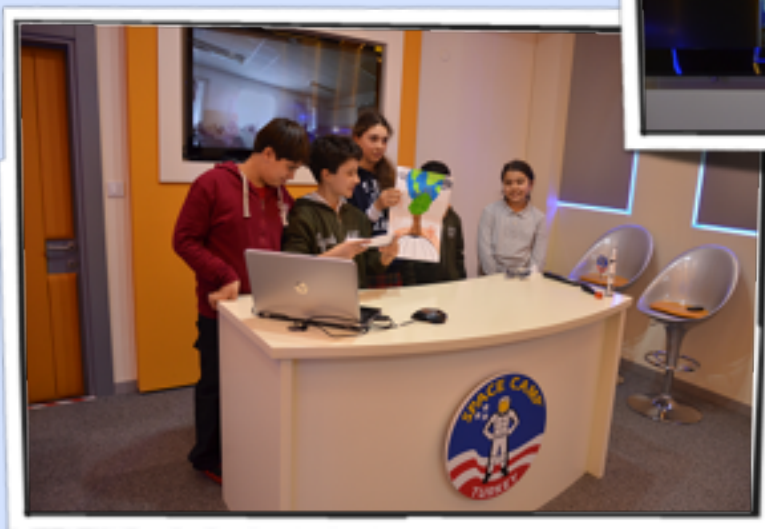
Dalya KINSIZER 6-A
Hisar Schools

References;
space.com
caltec.com



Partner School Science Program

Our Partner Schools have been very active since the beginning of this year. Some of the schools from Italy, Slovenia, USA and Turkey can be seen conducting their videoconferences in the photos below.



Future Explorers Program

FEP in full flow!

Some of the schools in the Future Explorers Program have already started working on our fifth subject "Humans to Mars". Here are some photos taken during our videoconferences.



Ekin College, İzmir



Çiğli Turk College, İzmir



BİLSEM, Balıkesir



Hisar School, İstanbul



Samsun Final Schools, Samsun



TÜZYEV Mozaik, İstanbul

ASTRONOMY PICTURE OF THE DAY



Orion's Belt and Sword over Teide's Peak

Image Credit & Copyright: Cesar & Carlos Tejedor

Explanation: The southern part of Orion, the famous constellation and mythical hunter, appears quite picturesque posing here over a famous volcano. Located in the Canary Islands off the northwest coast of Africa, the snow-peaked Teide is one of the largest volcanoes on Earth. Lights from a group planning to summit Teide before dawn are visible below the volcano's peak. In this composite of exposures taken from the same location one night last month, the three iconic belt stars of Orion are seen just above the peak, while the famous Orion Nebula and the rest of Orion's sword are visible beyond the volcano's left slope. Also visible in the long duration sky image are the Horsehead Nebula, seen as a dark indentation on the red emission nebula to the belt's left, and the Flame Nebula, evident just above and to the right of the Horsehead.