

EDITORIAL LAST NASE COURSES TEACHING MATERIALS

Editorial

NASE courses continue to spread around the world, integrating new countries such as Latvia, Hungary, Finland and Cape Verde, and opening new working groups in countries that were already members of NASE.

The courses have been diversified: you can take the complete course, Astrophysics, Astroculture, Astronomy and Astrobiology. The latter has been modified to include a new Workshop 11, entitled "Cosmological Timeline", on the development of the Universe, and the conditions for life to appear. Among the activities of the new Workshop are the fabrication of a 13-metre band with the time line of the Universe at scale, a model of galaxies with sand or bicarbonate, a model of the Earth's magnetic field and a model of the greenhouse effect.

This year, the project proposed by NASE for the International Day of Light (UNESCO), was about the search for micrometeorites. Many teachers and students from all over the world have participated, and the participation of hundreds of students in Iran and thousands of them in China is remarkable. On the last page of the Newsletter you can see how to do this activity. The project started with the equinox on 21 March and was supposed to end with the other equinox, but has been extended until 20 October since the final event of the project will take place in Viladecans, Spain on 27 October in conjunction with the Science on Stage Spain festival in person and on 28 October via telematics in Barcelona (Spain).

Finally, the South Korean Local Working Group organized and presented the contents of the NASE course during the IAU General Assembly in Busan in August 2022. At that time the COVID situation was not completely under control and the group in Korea was the representative of NASE. For this reason, and for the excellence of NASE's content transmission in Busan, NASE has recognized the South Korea Local Working Group in 2022. In-Ok Song is the group's coordinator.



Courses

301 Cairo, Egypt, June 21-22, 2022

In cooperation with National Research Institute of Astronomy and Geophysics.

302 Mongolia, Ulaanbaatar, June 21-22, 2022

In cooperation with National University of Mongolia

303 Cairo, Egypt, June 27-28, 2022

In cooperation with National Research Institute of Astronomy and Geophysics.

304 Conakry, Guinea, June 28-29, 2022

In cooperation with Association Guinéenne de l'Astronomie

305 Nouakchott, Mauritania, July 2nd-9th, 2022

In cooperation with Astronomy Association of Mauritania.

306 Sevilla, Spain, 5th July, 2022

In cooperation with Asociación para la Enseñanza de la Astronomía (ApEA).

307 Lomé, Togo, July 5th-7th, 2022

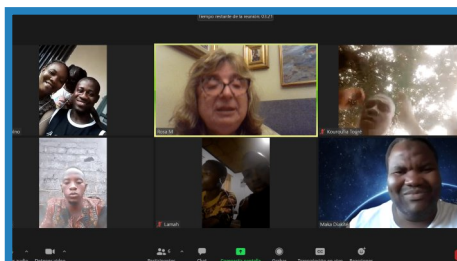
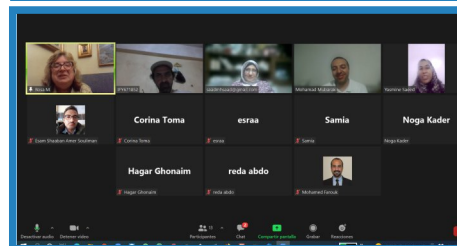
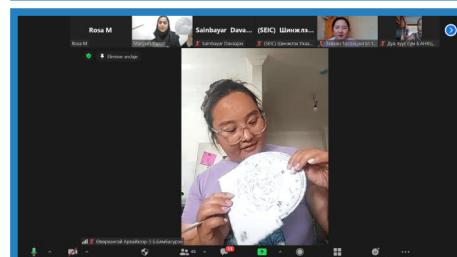
In cooperation with Science Géologique pour un Développement Durable and IAU National Outreach Coordinator.

308 Yamoussoukro, Ivory Coast, July 11th-12th, 2022

In cooperation with Association Ivoirienne d'Astronomie.

309 Nom Pen, Cambodia, July 13th-15th, 2022

In cooperation with Faculty of Science, RUPP.





310 Manila, Philippines, July 13th-16th, 2022

In cooperation with Philippine Normal University and College of Graduate Studies and Teacher Education Research.

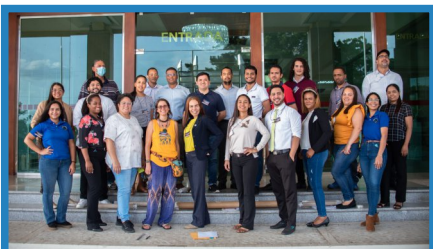


311 Porto-Novo, Benin, August 9th-10th, 2022

In cooperation with Bénin Mobile Astronomy Village

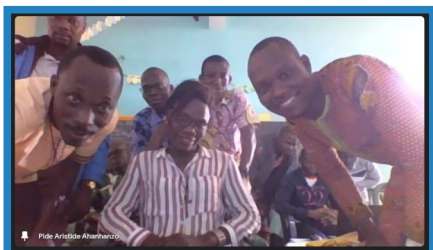
312 Busan, South Korea, August 5th-9th, 2022

In cooperation with Korea Science Academy of KAIST and National Organizing Committee for IAUGA2022 Busan.



313 Campo Mourão, Brasil, Agosto 2022

In cooperation with Universidade Tecnológica Federal do Paraná UTPR.



315 Porto-Novo, Benin, August 25-26, 2022

In cooperation with Benin Mobile Astronomy Village.

316 Asunción, Paraguay, September 5-30, 2022

In cooperation with Universidad Nacional de Asunción and Observatorio Astronómico prof. Alexis Troche Bogg.



317 Tanja, Colombia, September 15-23, 2022

In cooperation with Universidad Pedagógica y Tecnológica de Colombia.

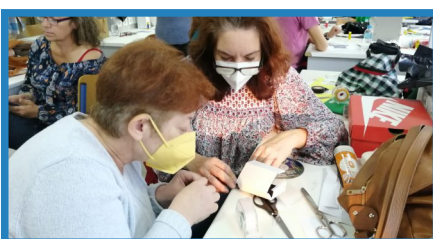
318 Guadalajara, Mexico, October 6-70, 2022

In cooperation with Universidad de Guadalajara, Centro Universitario de Ciencias Exactas e Ingenierías and Instituto de Astronomía y Meteorología.



319 Athens, Greece, Novemebr 5, 2022

In cooperation with the National Astronomical Committee and 1 st Vocational school of Agia Paraskevi.



320 Hanoi, Vietnam, 11th-12th November, 2022

In cooperation with Academy for Creation, Vietnam National Space Center and Vietnam STEM ambassador.

321 Guatemala, Guatemala, November 14th-18th, 2022

In cooperation with Universidad San Carlos de Guatemala.

322 Managua, Nicaragua, November 23-24, 2022

in cooperation with Universidad Nacional Autónoma de Nicaragua.

Students of Mathematics, Biology, Geophysics, Geology, Renewable Energy, UNAN-Managua and the Normal School.

323 Riga, Latvia, December 12-14, 2022

In cooperation with Latvia University. A group of Latvian physics teachers took part in NASE workshops on astrophysics. Although the workshops were held remotely, the participants worked practically in parallel, both making the models and carrying out the experiments.

324-325 Surabaya, Indonesia, December 12-13, 2022

In cooperation with Institut Teknologi Sepuluh Nopember, Institut Teknologi Sumatera ITERA and Institut Teknologi Bandung.

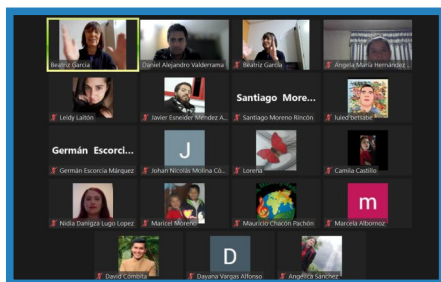
326 Ouled Djellal, Argelia, 24th-25th December, 2022

In cooperation with Union, in cooperation with NAEC – Algeria and Mediation Center

327 Bucharest, Romania, January 18th-19th, 2023

In cooperation with Ministry of Education.





328 Ciudad de Panamá, Panamá, 30th January to 3rd of February, 2023

In cooperation with SENACYT, PNUD and Ministerio de Educación.

329 Tunja, Colombia, 2-3 February, 2023

As a continuation of the NASE-317 presential course, in November 2022 in Tunja.



330 Ciudad de Panamá, Panamá, February 6th-9th, 2023

In cooperation with Departamento de Física, Facultad de Ciencias Naturales, Exactas y Tecnología, Universidad de Panamá and Astranova.



331 Orihuela, Spain, February 7th- March 14th, 2023

In cooperation with CEFIRE - MUDIC de Orihuela and EAEE.

332 Ivo, Bulgaria, 7th-9th February, 2023

In cooperation with Municipality Dolna Mitropolia and Municipal center for extracurricular activities

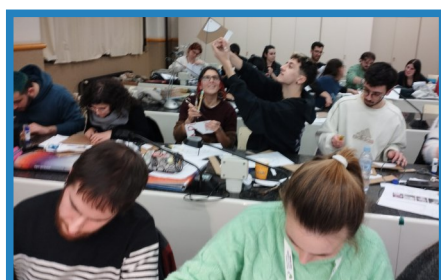
333 Tunja, Colombia, 9th of February, 2023

In cooperation with Universidad Pedagógica y Tecnológica y NAEC Colombia



334 Las Tablas, Panamá, February 13th-17th, 2023

In cooperation with Departamento de Física, Facultad de Ciencias Naturales, Exactas y Tecnología, Universidad de Panamá, Ministerio de Educación, Secretaría Nacional de Ciencia, Tecnología e Innovación, CADI Bilingual Academy and Astranova.



335 Barcelona, Spain, February 14th-16th, 2023

Completed on February 16th in cooperation with in cooperation with Màster de Secundaria de Biologia, Geologia, Física i Química, Universitat de Barcelona

336 Budapest, Hungary, 28th February -2nd March, 2023

337 El Salvador, El Salvador, 3rd-4th March, 2023

In cooperation with Universidad Don Bosco and Observatorio Micro Macro

339 Managua, Nicaragua, 11th-12th-25th of March, 2023

340 Vilnius, Lithuania, March 14th-15th, 2023

In cooperation with European Association for Astronomy Education, Vilnius University, Lithuanian Association of Physics Teachers (LFMA) and Spanish Embassy in Lithuania.

341 Turku, Finland, April 5th, 2023

In cooperation with Turku University.

342 Lleida, Spain, November 2nd-April 23rd, 2023

In cooperation with Departament d'Educació de la Generalitat de Catalunya.

343 Delvar, Iran, April 15th-16th, 2023

In cooperation with Mehr Observatory and Ministry of Education.

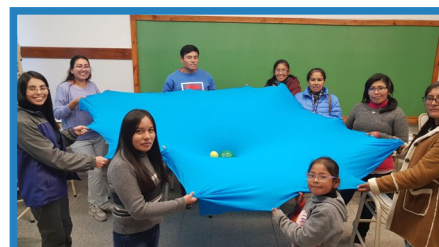
344 San Antonio de los Cobres, Argentina, April 20th-25th, 2023

In cooperation with CONICET and Ayuntamiento de Salta.

345 Delvar, Iran, April 24th-25th, 2023

In cooperation with Mehr Observatory

346 Deylam, Iran, April 29th-30th, 2023

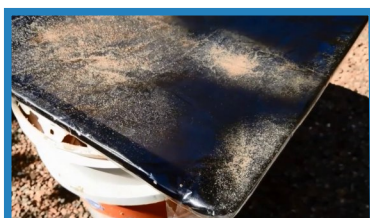


TEACHING MATERIALS

HOW TO COLLECT MICROMETEORITES

Every day about 40 Tons of extraterrestrial particles fall on Earth. This material travels through the atmosphere at great velocity and some particles look like shooting stars. The material melts and re-solidifies into small spheres, which fall over the entire surface of the earth and can be collected. Let's see how:

1st method: In canals and gutters of roads. When it rains, the water drains the material that falls from the sky and accumulates it in the drains of the roofs and in the gutters of the streets. If you pick up a little bit of sand from those places on a sheet of paper, you probably have some micrometeorites. We'll see how to identify them later.

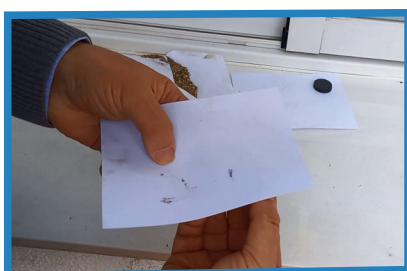


2nd method: Cover a kitchen tray with cellophane paper or film, place it outside, in a place where there is not much wind and nothing covers the sky. Wait at least a week and transfer the accumulated material on cellophane paper or film to a sheet of paper.

3rd method: Using a paper cup, a rope and a small magnet in the cup. The students go outside, very close to the ground with the magnetic vessels. Then they remove the magnet, and if iron particles (micrometeorites) are on the background, they fall on the white sheet of paper.



Separation



In the first two methods (channels/gutter or tray), you have to place a magnet under the sandpaper: you can clearly see that small iron particles are attracted by the magnet. Without separating the magnet, the paper is turned over, all the sand falls off, except for the dark, fine particles that are attracted by the magnetic field of the magnet. By turning the paper and removing the magnet, the possible micrometeorites are separated.

Identification

When observing the particles obtained with a mobile phone camera, at its maximum zoom, or with a microscope, the particles that are micrometeorites have spherical shapes, like small marbles.

