

INTERNATIONAL COSMIC DAY

Agenda 2016

Welcome to the International Cosmic Day (ICD) on November 02, 2016.

School groups from across the globe are getting together to ask questions like:

- What are cosmic particles?
- Where do they come from?
- How can they be measured?

Many groups worldwide took part in previous ICDs. We are looking forward to an interesting [International Cosmic Day in 2016](#), too! Groups of scientists, teachers, and students will meet for one day to learn about cosmic rays and carry out an experiment with secondary cosmic ray particles.

A novelty this year is the participation of scientists from the two renowned collaborations ATLAS and IceCube, who will analyze their data regarding the questions addressed by the International Cosmic Day.

This document includes guidelines for groups participating in the event. Institutions are free to implement these guidelines or plan their own events. For example, each institution can invite students or offer advanced training for teachers. Institutions can also choose if the event will be hosted at the school, university or other institution.

Participating groups receive:

- a placemark in a Google Map displaying the participating groups
- posters to announce the event
- a template for a press release
- certificates of participation for every student, teacher or organizer with an ICD booklet with all contributions after the event

We wish all participating groups an exciting ICD 2016!

Your ICD team



1 Announcement

We provide two posters:

- A general one: available at the homepage in the section "Participate", <http://icd.desy.de/e12688/>.
- A customizable template: Provided with the registration email or by contacting icd@desy.de.

With the customized poster you can attract attention to the upcoming event at your institution. The template is a MS Word document that can be printed in A3 format. You should add your institute name and logo and the location of the event on the poster. The default font is "Corbel"; if this font is not available to you, you can use "Arial" as a replacement. As an example how to adapt the template, the poster we will use at DESY is shown on the homepage <http://icd.desy.de>.

You are invited to put the posters everywhere where it will attract participants to your local event. Besides, you are free to advertise the event to the public by additional means. For example, you can send around a press release about the event at your institution, invite local journalists, or provide public information on the website of your school/university. To this purpose, please feel free to use any content from the homepage <http://icd.desy.de>.

2 Planning the Day

2.1 Introductory presentation

An expert should give the introductory presentation. The presenter will choose the appropriate level for the talk. It can cover topics such as:

- What are cosmic rays?
- Who discovered them and how?
- Who is doing research in astroparticle physics today?
- How will the group carry out their local experiment?

The presentation can either be given at the beginning of the day, or it can be split in one part in the morning and one part in the afternoon. It can also be complemented by a report from a scientist on a "big" experiment (e.g. the topic "IceCube – Wintering at the South Pole").

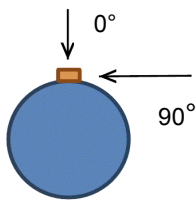
2.2 Measurement and Analysis

The goal of the ICD is to investigate the zenith angle dependency of particle showers induced by cosmic rays. We hope that all participants can carry out this measurement.

Each group will individually plan and carry out this measurement. Extending this measurement in order to investigate other aspects of particle showers is also possible.

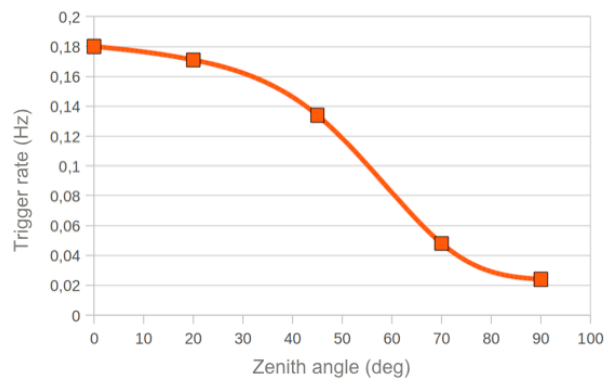
There are no restrictions on the schedule or on the setup used. It is important for the international exchange that at the end of the day the results are summarized and published in a diagram like the one shown below.

The goal is to measure the rate of air shower particles as a function of the zenith angle.



Please follow the convention: particles arriving perpendicular to the Earth's surface have a zenith angle of 0° ; particles arriving parallel to the surface are assigned a zenith angle of 90° .

Each group decides at how many different angles measurements are taken. The results should be presented in a graph and a short concluding paragraph. Additional information on the setup and data acquisition can be provided.



2.3 Discussion

You will find a timetable at <https://icd.desy.de/e25704/>. In this timetable you can see which groups are active at what time.

Since one of the goals of this project is to allow school students to compare and discuss their results with other students all over the world, we have created this timetable showing simultaneously participating institutes. This will help you to get in contact with each other. If you did not already do this, we would kindly ask you to add the time information to the registration form at <https://indico.desy.de/event/ICD2016>

Chat

Over a Skype chat you can get in contact with these other groups and discuss problems or preliminary results. Please get in Contact with the Skype account "InternationalCosmicDay". Under "search contact" you can find it and connect with all ICD groups.

The Skype chat will be available the whole day (especially groups from China, India and Japan: we will open the chat with the first call at 7:00 UTC, see below).

Video Call

Furthermore we propose four times for a Skype video call:

- 7:00 UTC for China, Japan, India
- 13:00 UTC and 14:00 UTC for Europe
- 20:00 UTC for USA

Goal of the call is:

- To present your school/institute/country to the others.
- Show and describe the detector you are working with (e.g., with your webcam).
- Give, in a few sentences, an intermediate report on your results.
- If possible: Show some results on a single PDF slide. Therefore, we use the File exchange function within Skype. As the bandwidth of this service is limited, please pay attention not to create too big files (> 1 MB).

To motivate the purpose of the calls, it would be nice if the organizers could tell their students how scientific collaborations work together in practice and how they exchange their results. Please prepare the students that the calls will be held in English. In the past, it worked out well to nominate some motivated students in advance to present the results for their group.

Also IceCube and ATLAS will present their results. Both experiments are able to detect muons and measure their zenith angle dependency. We hope, scientists from both experiments can join all four calls.

If the times of the call turn out to be inconvenient for your group, please write us an E-mail or post it in the chat. In case more than 10 groups want to participate in a call at the same time, we will split the call.

ICD Booklet

As in the past years, we want to collect all measurement results in a booklet, which will be distributed to all participants. The goal is to store all results in one document. The booklet will contain:

- The general announcement poster.
- A picture of the Google map.
- A short presentation of all the participating schools/institutes.
- The presentation of the results of all participating groups and of IceCube and ATLAS.
- Summary of the event.
- Additional information about school projects, relevant links, interesting websites and further material.

To compile this booklet, we kindly ask everybody to

- design a one-page PDF (A4: 21 cm x 29,7 cm) with pictures, comments or notes, and their measurement result. It will allow other groups to compare their own results and on the next day all groups around the world can see all results. In case you have different (larger) groups, you can send multiple result pages.
- provide a single slide (A4: 21 cm x 29,7 cm) presenting your school/institution. If you don't provide this slide, we will not generate one for you, so it's up to you.

Please send the pages to Carolin Schwerdt (carolin.schwerdt@desy.de) preferably until one week after the ICD.

If you have ideas for the booklet or links to further material please let us know!

4 Closeout

We will directly send an E-mail to every participant (student, organizer, teacher) with their certificate and the ICD booklet some days after the event. Therefore we kindly ask you to send to Carolin Schwerdt (carolin.schwerdt@desy.de) the names of participants and their E-mail address listed in the spreadsheet "ICD_Participants.xls" you received. These data will be used to generate the certificates only, treated confidentially and will not be saved permanently or given to third parties. Therefore, please send it directly to Carolin Schwerdt, and not to icd@desy.de.

5 Checklist

Have you

- posted your customized announcement poster or the general poster?
- announced the event via other channels (e.g. using the template for press release)?
- checked your place marker at <https://icd.desy.de/e25775/>?
- checked entry in timetable at <https://icd.desy.de/e25704/>?
- checked out the Skype account and the video call times?
- got the permission to implement photographs of students in the booklet slides if you want to use such (this permissions is not requested by us, but is meant for you to be on the safe side)
- sent a slide with your results, a slide about your school/institute, the list with all participating students and their E-mail addresses to Carolin Schwerdt carolin.schwerdt@desy.de (after ICD)?

Please feel free to contact us (icd@desy.de) in case you have any further questions or look in the FAQ on icd.desy.de.