



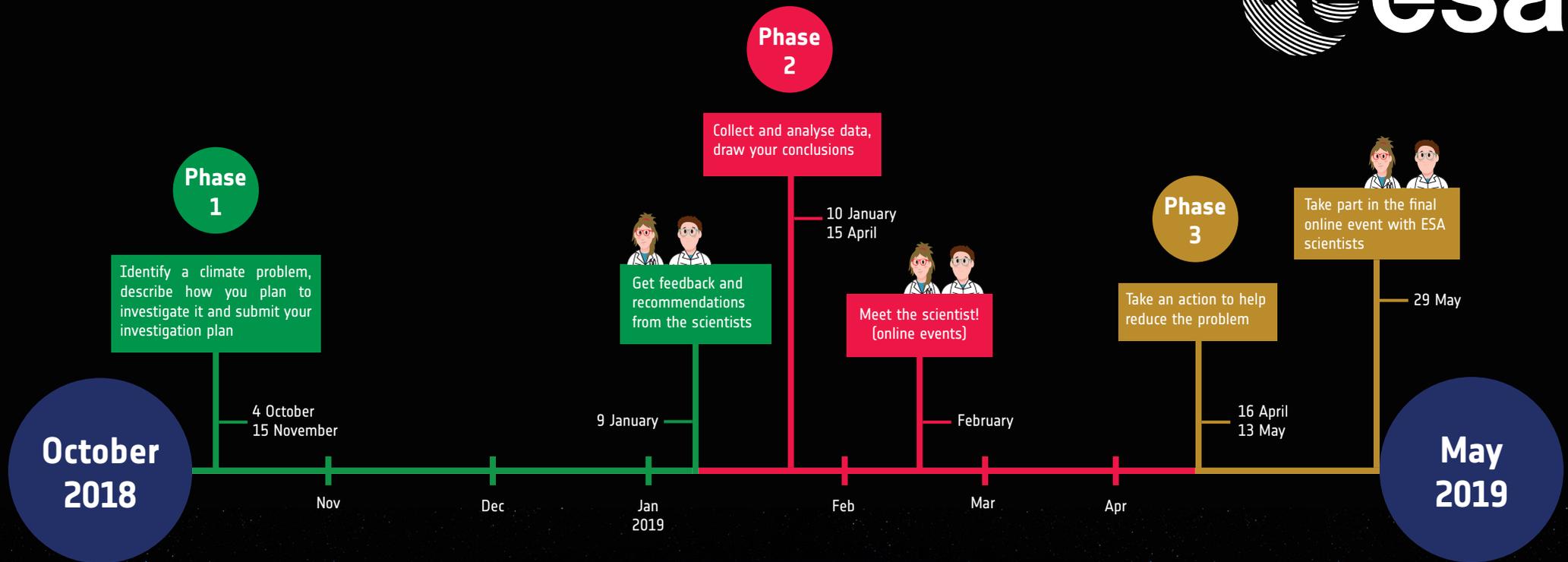
**→ CLIMATE DETECTIVES
2018-2019 GUIDELINES**

→ INTRODUCTION

ESA invites school teachers and students between the ages of 8 and 15 to team up and join the **Climate Detectives** school project, kicking off in October 2018 and running throughout the school year. Teams of students, supported by their teacher, are called to 'make a difference': identify a climate problem by observing their local environment, investigate it by using available Earth Observation data or taking measurements on the ground, and then propose a way to help reduce the problem.

The students will learn about climate on Earth as a complex and changing system and the importance of respecting our environment.

At key phases of the project, scientists in the field of Earth observation and climate will support the teams by giving written feedback on their investigation plan. During the project, an online event with a scientist will also be organized to give teams inspiration and guidance for their practical work. At the end, all participating teams will share their research findings on a dedicated project website.



[→ Climate Detectives overview](#)



→ Phase 1 - Identify a climate problem

4 October 2018 – 9 January 2019

In this phase, students will be asked to identify a climate problem that they would like to investigate as ‘**Climate Detectives**’. Students should define the problem based on questions that arise from their school studies and from observations in their local environment.

Students will have to plan their investigation of the problem, including data collection and, if applicable, data comparison from different sources.

In this phase, students are also asked to start brainstorming about the possible actions they could take to help reduce the problem, that can also include awareness raising in their community. This brainstorming will help the students in Phase 3, when they will be asked to discuss and revise the actions they want to take in order to ‘make a difference.’

Teams have until 15 November 2018 to identify a climate problem and submit their investigation plan online (maximum 550 words) (see section 2, ‘How to enter the project’). In their investigation plan, the teams must:

- describe the local climate problem/issue they want to investigate (maximum 150 words);
- explain how they plan to investigate the identified climate problem and which data they plan to collect and analyse (maximum 250 words);
- propose minimum one and maximum three possible actions to help reduce the identified climate problem (maximum 150 words).

What could a climate problem be?

Teams can explore different problems or their causes/effects but they have to make sure the relation with climate is worked out as well as the relation with their local environment. Examples of climate problems could be “how might increased rainfall in the last years affect flooding in my area?” or “due to the low precipitation, our local river has less water; what are the consequences for the biodiversity and for the local community?”.

Scientists expert in the field of Earth observation and climate will then review the investigation plans and give their feedback to all teams participating in the project. Teams will receive feedback and recommendations about their investigation plan by 9 January 2019.

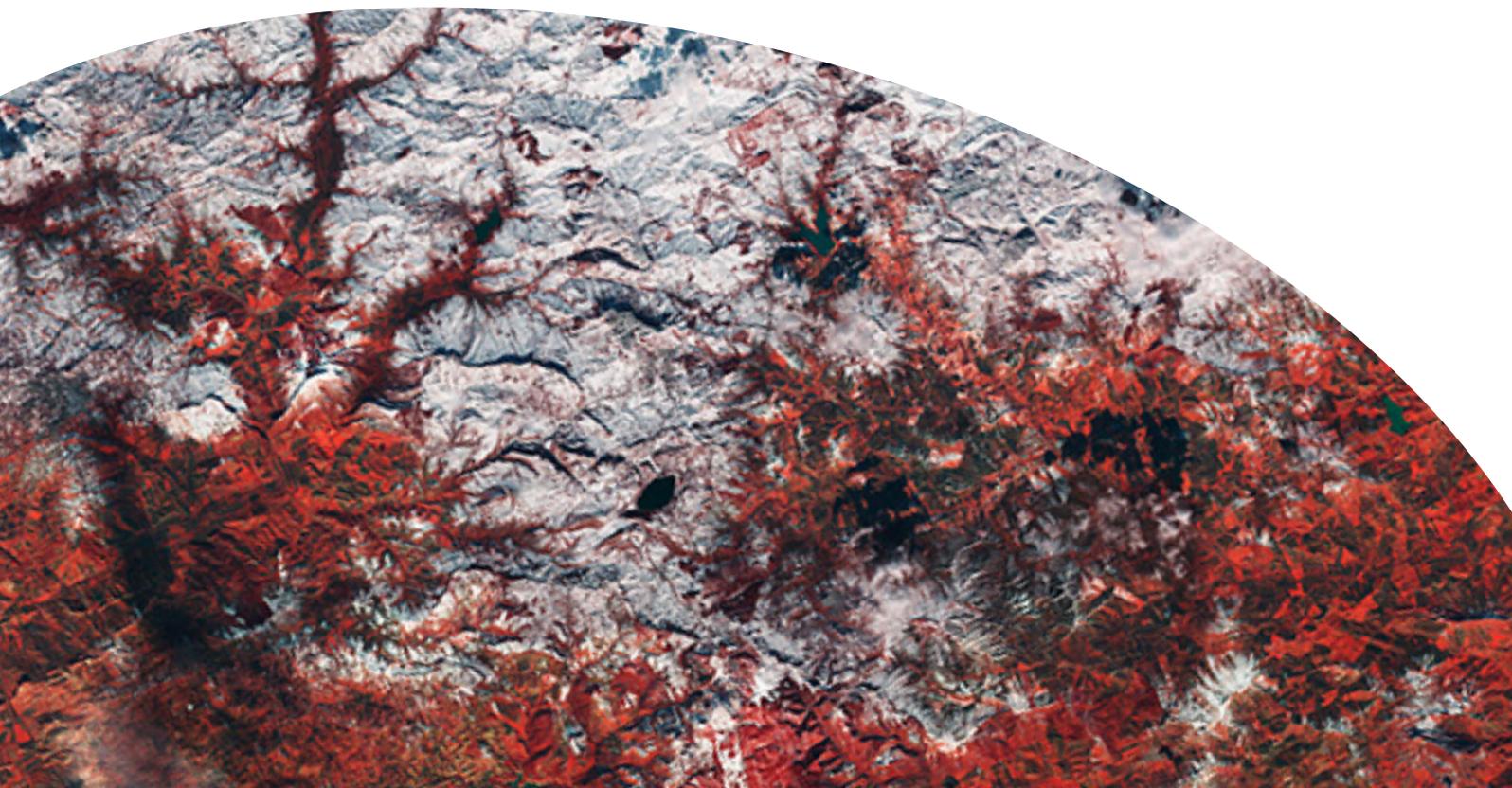
→ Phase 2 - Investigate the climate problem

10 January 2019 - 15 April 2019

In this phase, students will collect, analyse and compare data to draw a conclusion about the problem they are investigating. **The use of data is mandatory to enter the project.** Such data can either be satellite or ground-based data retrieved from professional sources, or data obtained from measurements by the students, or a combination of them.

For example, teams can make weather observations and compare them with historical climate data. In section 4 (“Supporting resources”), students can find examples of tools which will give them access to Earth observation satellite imagery and data.

During Phase 2, ESA or, where applicable, the national coordinator will organize online events in which teams can “meet a scientist” and receive background information and tips.



→ Phase 3 - Make a difference

16 April 2019 – 17 May 2019

We can all make a difference. Based on the results of their investigations, students should discuss and revise the actions proposed in their investigation plan and then decide on the actions they want to take - as individuals and as citizens – to help reduce the problem. Actions do not need to be limited to the school time; for example, students could take home ideas and involve their families to put them into practice in their everyday lives, or could run a presentation campaign to their school or local community to raise awareness, and more.

Teams should record and provide evidence of their actions, and will have to share them with the ESA Climate Detectives community. To this end, ESA will provide an online platform in which all teams participating in the project will be able to share a short summary of their investigation, their main results, conclusions and actions. Teams will be able to share their results from 29 April 2019 until 17 May 2019. In due time, ESA will provide information on how teams can share their results.

At the end of Phase 3 (29 May 2019), ESA will host a final online event for participating teams. Scientists will point out relations between the Climate Detectives projects to the climate research being conducted at ESA.



→ How to enter the project?

In Phase 1, teams have to submit their investigation plan online. **The deadline is 15 November 2018.**

In the cases where ESA has identified a national coordinator, teams shall register to Phase 1 through their national coordinator, and they can choose to submit their investigation plan either in English or in their national language:

- If you are a team from Austria, you should register through ESERO Austria.
Find more information on www.aec.at/esero
- If you are a team from Belgium, you should register through ESERO Belgium.
Find more information on www.esero.be
- If you are a team from Czech Republic, you should register through ESERO Czech Republic.
Find more information on www.esero.sciencein.cz/detective
- If you are a team from Denmark, you should register through ESERO Denmark.
Find more information on www.esero.dk
- If you are a team from Finland, Norway and Sweden, you should register through Nordic ESERO. Finish teams have to submit their investigation plan in English.
Find more information on www.esero.no
- If you are a team from Portugal you should register through ESERO Portugal.
Find more information on www.esero.pt
- If you are a team from Spain you should register through ESERO Spain.
Find more information on www.esero.es
- If you are a team from United Kingdom you should register through ESERO UK.
Find more information on www.stem.org.uk/esero

In all other cases, that is for teams from Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Poland, Romania, Switzerland, Slovenia and Canada, registration shall be done through the ESA Education office and the entries must be submitted in English.

Find more information on www.esa.int/ClimateDetectives

→ Who can participate?

All the following eligibility conditions have to be fulfilled to participate in the Climate Detectives project:

- Participation is open to teams from 8 up to (and including) 15 years old.
- Each student team must consist of a minimum of six students up to the whole class.
- One teacher can sign up maximum three student teams.
- At least 50% of the team members must have the nationality of an **ESA Member or Associate Member State***.
- Team members must meet one of the following requirements:
 - ▶ Be enrolled full-time in a primary or secondary school located in an ESA Member or Associate Member State; ESA will also accept entries from primary or secondary schools located outside an ESA Member or Associate Member State only if such schools are officially authorised and/or certified by the official Education authorities of an ESA Member or Associate Member State (for instance, French school outside Europe officially recognised by French Ministry of Education or delegated authority).
 - ▶ Be home schooled (certified by the National Ministry of Education or delegated authority in an ESA Member or Associate Member State).
 - ▶ Be a member of a science or environment club, enrolled full-time in a primary or secondary school in an ESA Member or Associate Member State.
- Each team must be supervised by a teacher or mentor acting as the team's point of contact with ESA's Education Office and, where applicable, with the respective national coordinator.
- Each team can submit one entry only and each student can only be a member of one team.

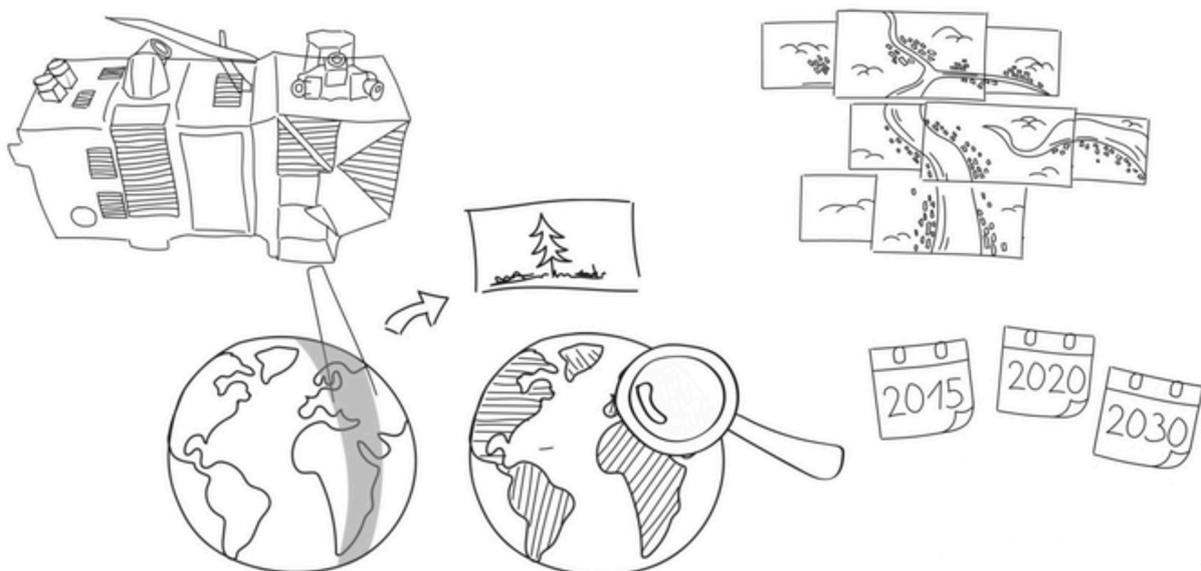
Teams not respecting the conditions above will be rejected.

→ Supporting resources

Students can access Earth Observation satellite data making use of the suggested tools:

- **EO Browser** - EO Browser combines an archive of different Earth observation satellites. The EO Browser can be used to research satellite images covering any area of interest. It is also possible to download the images in different formats. Changes on Earth that took place in the past 30 years can be analysed with the 'compare' function and students can also create their own time-lapse..
- **Climate from Space** - This app, developed by the ESA Climate Office, shows more than 30 years of global satellite observations on climate. Background information on different climate variables such as ocean temperature, sea level, carbon dioxide, is provided. With the interactive data viewer, students can analyse and compare different phenomena related to climate and investigate how they change over time.

ESA will also provide classroom resources for primary and secondary school teachers. These cover the topics weather and climate, seasons, Earth and atmosphere as well as natural and human-made disasters. ESA suggests the use of these resources to encourage student's participation and motivation and to improve their understanding of Earth's climate as a complex and changing system.



→ Questions

For any questions, consult the ESA Climate Detectives website www.esa.int/ClimateDetectives and the national coordinators websites, or send an email to climate.detectives@esa.int.

→ Useful links

ESA Climate Detectives

www.esa.int/Education/ClimateDetectives

ESA app 'Climate from Space'

www.esa.int/Our_Activities/Observing_the_Earth/Space_for_our_climate/Climate_at_your_fingertips

EO Browser

apps.sentinel-hub.com/eo-browser/

ESA's Climate Change Initiative

cci.esa.int

ESA's Earth Observation missions

www.esa.int/Our_Activities/Observing_the_Earth/ESA_for_Earth

ESA Earth Observation Image of the Week

www.esa.int/spaceinimages/Sets/Earth_observation_image_of_the_week

