

AIRBUS FOUNDATION

Annual Activity Report **2022**

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DO NOT
PUSH

AIRBUS FOUNDATION

Executive summary

The Airbus Foundation continued to increase its activities in 2022, benefitting from the easing of COVID-19 restrictions and building on accomplishments achieved during the previous two years despite the pandemic's impact.

In 2022, the Foundation maintained the focus on its three core pillars: Humanitarian Aid, the Environment, and Youth Development.

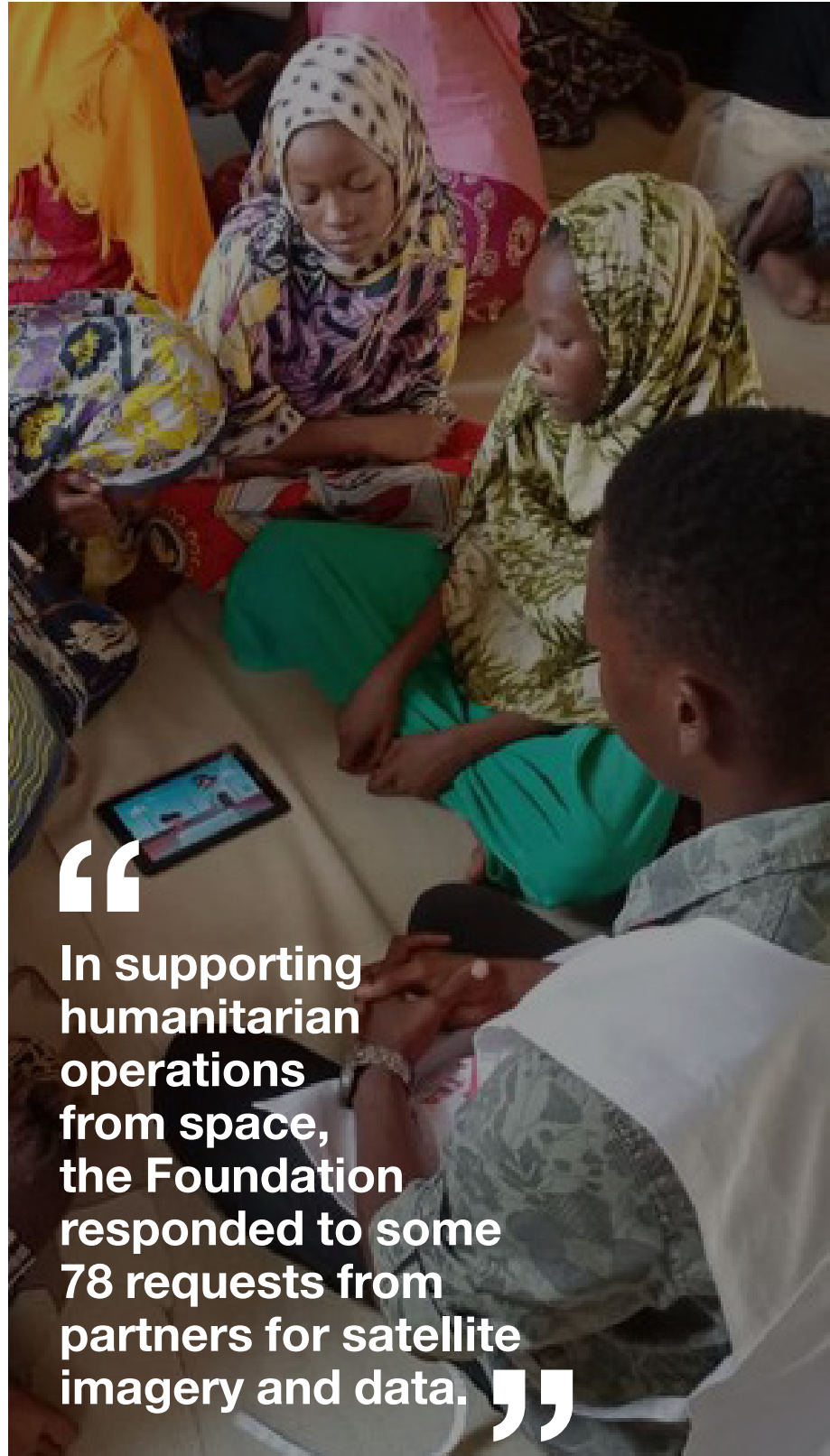
Humanitarian Aid: support from the air, space and at sea

For the Humanitarian Aid pillar, the Foundation supported its partners with disaster response through delivery flights that carried more than **175 tonnes of aid**. This was in addition to some **210 helicopter flight hours** chartered in response to flooding, famine crises and population displacement due to natural disasters.

The Foundation further developed its humanitarian response capabilities by adding the use of Airbus chartered aircraft when resources from Airbus' own flight test fleet were not available.

Looking ahead, the Foundation also is investigating the possibility of employing Airbus-operated transport ships (which support the company's industrial production) to carry goods for partners in facilitating stock pre-positioning at their warehouses.

In supporting humanitarian operations from space, the Foundation responded to some **78 requests** from partners for satellite imagery and data. The results covered approximately **15,000 square kilometers**, with this imagery and data used in disaster assessment and response plans, as well as for monitoring human displacement, in flooding surveillance, and also for the support of medical activities.



“
In supporting humanitarian operations from space, the Foundation responded to some 78 requests from partners for satellite imagery and data.”

Youth Development programmes that circled the globe

The Foundation's Youth Development pillar implemented programmes in 2022 that spanned **17 countries across Europe, Africa, Asia, and the Americas.**

This involved approximately **260 Airbus volunteers** and directly reached an estimated **9,000 students** – with specific attention given to gender balance, while also including a pilot programme for children living in a refugee camp.

Another aspect of the Youth Development pillar was an enrichment of the Foundation's STEM (Science, Technology, Engineering and Mathematics) content, with videos explaining certain aspects of the science behind aeronautics and space. The content is now available on a dedicated website, the Airbus Foundation Discovery Space, and is offered in a minimum of four languages (English, French, German, and Spanish).

Additionally, the fourth edition of the Moon Camp Challenge benefitted from the success of previous years, with **2,597 projects submitted in 2022 from 53 countries by over 5,600 students – supported by nearly 600 teachers.**

Environment: Climate change, disaster prevention and biodiversity protection

In 2022, the Airbus Foundation further developed its Environment pillar, focusing on climate change mitigation and monitoring, along with climate change adaptation, disaster prevention and the protection of biodiversity.

This included a continued collaboration with the Connected Conservation Foundation to support the preservation of wildlife and natural ecosystems in South Africa and Kenya through the use of satellite imagery.

The Airbus Foundation also facilitated the provision of technical data and project management.

As an example, development and analysis services advanced towards validation of the International Union for Conservation of Nature's (IUCN), providing images, data and the support of a technical team to carry out analysis.

At the end of 2022, The Airbus Foundation signed an agreement with the Polar POD expedition to support both its scientific programme and the mission's operational phase. The Airbus Foundation will provide access to products and services such as Earth observation satellite data, as well as offer additional capabilities for reliable high-speed telecommunications. This maritime expedition, led by the renowned French explorer and scientist Jean-Louis Etienne's non-profit organisation, "**Océan Polaire**", aims to better understand global environmental and climate dynamics.

All of the activities supported by the Airbus Foundation are subject to a rigorous validation process and are aligned with the integrity and compliance values of Airbus. The Airbus Foundation's support of projects and causes is managed in a transparent way – documented and undertaken without the expectation of commercial benefit in return.

Rachel Schroeder
Managing Director - Airbus Foundation

HUMANITARIAN AID

Since the Airbus Foundation's launch in May 2008, it has facilitated more than **95 relief or goodwill flights** to numerous destinations around the globe – transporting over **1,347 tonnes of aid**.

Preparing a humanitarian operation is complex, with multiple stakeholders involved. It typically takes a minimum of three days from receiving the initial NGO (non-governmental organisation) request to gather the relevant information for the initial go/no-go decision.

The timing depends on factors that include the partner's preparedness, the request's complexity, how many actors are involved, and whether all the necessary information is provided.

Before engaging in any mission, due diligence is mandatory for any of the stakeholders involved.



relief or
goodwill flights

since 2008



tonnes of aid

since 2008

Bringing relief with airlift



In 2022, the Airbus Foundation coordinated seven humanitarian flights across six countries: Ethiopia, Madagascar, the Republic of Moldova, Poland, Pakistan and Somalia in response to hurricanes, flooding and famine. Assistance also was provided for refugees from the war in Ukraine.

More than 175 tonnes of aid were transported during the year for the humanitarian community. This aid was provided by sources that included Aviation Without Borders (ASF), Action Against Hunger (ACF), the French Crisis and Support Centre (CDCS), the World Health Organization (WHO), and the International Federation of Red Cross and Red Crescent Societies (IFRC).

HUMANITARIAN RELIEF FOR MADAGASCAR

The Airbus Foundation used three Airbus products in the effort to bring much-needed relief to people in the Madagascar region after cyclone Batsirai in February: a chartered Airbus cargo aircraft; an Airbus-built helicopter from the South African operator, Savannah; as well as imagery from Airbus-produced satellites.

Together with Action Against Hunger and the local non-governmental organisation ASOS (Action Socio-Sanitaire Organisation Secours) as partners – the Foundation airlifted 23 tonnes of humanitarian relief items to Madagascar. Additionally in the country, the Foundation provided satellite imagery and organised helicopter aerial assessment and transport missions that were carried out with the Centre de Crise et de Soutien of the French Ministry of Foreign Affairs (CDCS MEAE).

Delivered items consisted of water purification stations, water tanks, buckets, toys for children, storage space, tents and latrine slabs – benefitting nearly 10,000 disaster victims on Madagascar's east coast.

Two emergency water purification stations provided by Aquassistance were installed to meet a temporary need for drinking water production. Also transported were supplies and equipment needed to rehabilitate health infrastructure damaged by the cyclone.

A detachment of 60 rescue workers was sent to the Mananjary area for a period of three weeks after the cyclone's passage. Assisted for 12 days by a helicopter made available through the Airbus Foundation, the action of this detachment focused on providing drinking water and emergency assistance to the population. The helicopter's use allowed the teams to assess damage and to identify the actions to be taken in the Vatovavy-Fitovinany region. Above all, this means of transport enabled the deployment of medical teams and the delivery of medicine, water and food to a dozen inaccessible villages.

Bringing relief with airlift



SUPPLIES DELIVERED TO MOLDOVA FOR UKRAINIAN REFUGEES

In March, the Airbus Foundation supported its partner, the French Crisis and Support Centre, in transporting 37 tonnes of humanitarian aid to Moldova. This aid – which consisted of small and large tents, camp beds and sleeping bags – was transferred from Vatry in France to Chişinău, Moldova, to provide support for Ukrainian refugees.

HEALTH EMERGENCY IN UKRAINE

Also in March, the Airbus Foundation worked with the World Health Organization to transport 21 tonnes of humanitarian aid using an A330-200 aircraft from Airbus' flight test fleet to respond to the health emergency triggered by the conflict in Ukraine. Consisting of medicine, surgical material, surgery instruments, refrigerators and freezers, this aid was transferred from the World Health Organization's hub in Dubai to Warsaw in Poland.

Bringing relief with airlift

RESPONSE TO PAKISTAN FLOODING

In September, nearly a month after Pakistan was hit by the worst floods in recent history, United Nations agencies warned that the humanitarian situation was complex in a country where nearly eight million people were still out of their homes.

The Airbus Foundation chartered an A330-200 in response to the French Crisis and Support Centre's request to transport 18 tonnes of aid to Pakistan. The flight airlifted humanitarian aid, including water pumps and pipes, tents, hygiene and kitchen kits, as well as 12 people from the French Sécurité Civile civil defence agency to bring immediate aid to the areas affected by the flooding. This action was under French President Emmanuel Macron's request – which enabled France to assemble an extraordinary operation for emergency

relief to the people of Pakistan affected by these severe floods ravaging their country.

Later in September, the Airbus Foundation's support for Pakistan continued with a second A330 charter flight in response to the International Federation of Red Cross and Red Crescent Societies' request to transport 31 tonnes of non-food items, transferred from the IFRC's prepositioned stock in Kuala Lumpur to Islamabad – where this organisation's logistics base is located.

The shipment included shelter tool kits, hygiene and kitchen kits, Jerrycans to improve hygiene and sanitation accessibility. Mosquito nets and tarpaulins provided highly needed relief to the affected areas.



Bringing relief with airlift

DROUGHT AND FOOD CRISIS IN SOMALIA

The Airbus Foundation organised a chartered A330-300 flight during December – cooperating with the IFRC and the Danish Red Cross – to transport 37 tonnes of ready-to-use therapeutic food (RUTF) from Mumbai to Hargeisa in Somalia. RUTF is an energy-dense, micronutrient paste made using peanuts, sugar, milk powder, oil, vitamins and minerals that has helped treat millions of children threatened by severe wasting – the most dangerous form of malnutrition.

The operation's aim was to assist the Somali Red Crescent Society in relief support for people impacted by the drought and food crises as the country faced the worst episodes of food insecurity in decades. An estimated 7.8 million people were severely affected – first by drought due to the unprecedented impacts of multiple seasons of limited rain, and by soaring food prices – creating a “perfect storm” of a humanitarian crisis. A historic fifth poor rainy season is forecasted, which will keep up the humanitarian needs into 2023 with heightened food insecurity as well as the scarcity of water.

UNITING TO DELIVER HUMANITARIAN AID TO ETHIOPIA

During November, the Airbus Foundation teamed up with Ethiopian Airlines to transport eight tonnes of medical items provided by Aviation Without Borders to the Ethiopian Airlines Foundation. This benefited local communities, as well as the Black Lion Hospital in Addis Ababa – Ethiopia's largest general public hospital.

In recent years, the humanitarian situation in Ethiopia has deteriorated significantly, with millions affected by human-made and natural disasters. An estimated 23 million people in Ethiopia are in need of humanitarian assistance across the country due to the combined consequences of conflict, drought, epidemics, food insecurity, pest outbreaks and population movements. In addition, millions of people have been forced to flee their homes to escape inter-communal violence.





Bringing relief with airlift



Rachel Schroeder
Airbus Foundation's Managing Director

This cooperation agreement increases the capability of the Airbus Foundation and the AECID to respond in the immediate aftermath of a natural disaster.

THE AIRBUS FOUNDATION AND AECID COOPERATION IN HUMANITARIAN MISSIONS

In April, the Airbus Foundation and the Spanish Agency for International Development and Cooperation (AECID) signed a Memorandum of Understanding (MoU) to increase the cooperation between emergency responders and build capacity as well as logistics capabilities. The commitment establishes processes to increase the efficiency of humanitarian missions in the immediate aftermath of a natural disaster.

The MoU was signed by Antón Leis García, Director of AECID, and Rachel Schroeder, Managing Director of the Airbus Foundation.

The agreement's framework formalises the Airbus Foundation's collaboration with the AECID for satellite imagery in assessing humanitarian needs, along with the transportation of cargo utilising Airbus test aircraft and the provision of Airbus helicopter flight hours in coordination with local operators.

"Combining the AECID's extensive humanitarian network and its resources with the products and services of the Airbus Foundation helps us establish a common approach to achieve the best impact possible for every humanitarian mission", said Antón Leis García, the Director of AECID.

Vital support with helicopter missions

Throughout 2022, the Airbus Foundation supported an important number of humanitarian missions with helicopter services.

Once again, this underscored the value of the agile and responsive capabilities offered by the Airbus Foundation and the network of Airbus Helicopters operators, helping those in life-threatening situations and supporting rescuers on the ground, as well as assessing emergency situations.

When seconds count during an operation, the deployment of helicopters for urgent airlift can make a difference in saving lives.



HELICOPTER SERVICES IN ASIA AND AFRICA

The Airbus Foundation facilitated five missions in the Philippines, Madagascar, the Democratic Republic of Congo and Kenya, bringing aid and comfort after hurricanes, during famine and for the displacement of persons. This support was organised in collaboration with the following partners: the French Crisis and Support Centre (CDCS); the International Federation of Red Cross and Red Crescent Societies (IFRC); Action Against Hunger (ACF); and the Kenya Red Cross.

For the Philippines, humanitarian support was organised after Typhoon Rai Odette. The typhoon caused devastation in the islands of Visayas and northern Mindanao – affecting more than 2.6 million people in communities already greatly suffering from the COVID-19 pandemic. More than 159,000 homes and 35,000 classrooms were damaged; additionally, severe damage was caused to lifelines (including power lines, water supplies and communication networks).

The Airbus Foundation provided the CDCS with an EC135 helicopter from the INAEC Aviation shipment of essential products, delivered to the local population and the French community on site. The multiple flight hours provided via the Airbus Foundation enabled the delivery of 120 kgs. of urgent humanitarian aid for local populations – in particular, medicine and water purifiers.

A second mission of the Airbus Foundation – accomplished with the International Federation of the Red Cross and the Philippine Red Cross – provided helicopter support with an H145 rotorcraft operated by Asian Aerospace. It transported experts to conduct aerial assessments in the areas hit by Typhoon Odette, and essential relief items also were distributed.

Vital support with helicopter missions

HELICOPTER RESPONSE TO MALNUTRITION IN THE DEMOCRATIC REPUBLIC OF THE CONGO

Action Against Hunger's emergency base in the Democratic Republic of the Congo performed emergency interventions during July in response to nutritional crises throughout the Congolese territory. Following the confirmation of severe acute malnutrition in the region, Action Against Hunger requested the Airbus Foundation's support. In response, the Airbus Foundation provided an EC130 rotorcraft operated by BAC Helicopters. In total, the Foundation donated 112 flight hours to transport nine Action Against Hunger emergency team members and 33 tonnes of material, including medication, nutritional goods and equipment.



Reinforcing the Foundation's relationships



KENYA RED CROSS SOCIETY

In Kenya, the ongoing project to install innovative water units in underserved locations reached a new level of maturity, with the upgrade of four existing units and the installation of three new units.

The project's targeted objectives were to: increase access to safe and sustainable drinking water (reaching 109,751 people in the targeted areas); to educate the communities on best hygiene practices; to reduce waterborne diseases across communities; and to capture the impact of the technology on the targeted communities.

Key achievements included the successful installation of seven units, and the organisation of sessions to promote hygiene in three schools. Additionally, new sites were identified for the installation of two remaining, while a bacteriological water analysis of purified water was performed using plasma water sanitation system (PWSS) technology at one of the targeted schools.

The substitution of electricity with solar energy as the power source for the plasma technology units' operation was recommended. This is to ensure the project's sustainability and to reduce electricity bills.

Reinforcing the Foundation's relationships

TEAMING WITH ACTION AGAINST HUNGER

For the second consecutive time, the Airbus Foundation supported its partner, Action Contre la Faim (Action Against Hunger), in a sports and solidarity programme called the #ConnectedagainstHunger Challenge.

Challenge participants from 82 companies and organisations around the world reached a total of one million kilometres and raised nearly €500,000. The funds went towards Action Against Hunger's activities to support food security and to counter the impact of climate change in vulnerable communities around the world.

Through the participation of more than 1,780 Airbus employees in 200-plus teams, the Airbus Foundation donated more than €140,000 to Action Against Hunger. Four Airbus Foundation teams finished in the Challenge's top 10 rankings.

Action Against Hunger is a major actor in the fight against world hunger, and its environmental actions aim to combat the consequences that climate change can have on populations around the world.



Reinforcing the Foundation's relationships

FONDATION DE L'ACADÉMIE DE MÉDECINE (FOUNDATION FOR THE ACADEMY OF MEDICINE)

In 2022, the French Fondation de l'Académie de Médecine (FAM) coordinated two missions with the Airbus Foundation's support.

After training missions were put on hold due to the COVID-19 pandemic, this teaming enabled the restart of an innovative training program in helicopter emergency medical services (HEMS).

Combining theory and practice, the training and exchange sessions were organised with 80 participants in Thailand and 220 participants in Mexico – involving doctors, nurses, pilots, aviation authorities and administration staff. These sessions brought further expertise to local emergency experts, enabling them to establish and evolve HEMS missions to further enhance health and safety.



CAPACITY STRENGTHENING

The Airbus Foundation provided training provided by the Air Business Academy on the topics of strategic thinking and innovation for the IFRC, the Kenya Red Cross and the World Food Programme's Global Logistics Cluster team. Additionally, the Airbus Foundation and the Global Logistics Cluster provided four partner organisations with training on knowledge management, strategic thinking and innovation – all geared at improving humanitarian response in emergencies.

Satellite imagery in humanitarian aid

The supply of satellite imagery is a key element of the Airbus Foundation’s support of humanitarian relief, enabling humanitarian sector assessments of major natural disasters and crises worldwide. With these satellite images and their analysis, emergency responders and disaster relief organisations are able to map out areas that could be difficult to access, thereby determining the severity of damage and enabling coordination of staff actions on the ground and in the air.

In 2022, the Airbus Foundation responded to an increased number of requests and delivered thousands of square kilometres of satellite imagery to its partners with the support of the Connected Intelligence team from Airbus Defence and Space.

Tailored training sessions also increased the partners’ in-house capacity to understand and analyse satellite imagery.



Louise Bellemère

Imagery Content Manager for Airbus Defence and Space’s Connected Intelligence team

I am convinced that satellite images will be more and more useful in finding the right answers to protecting our environment and assisting those in need.



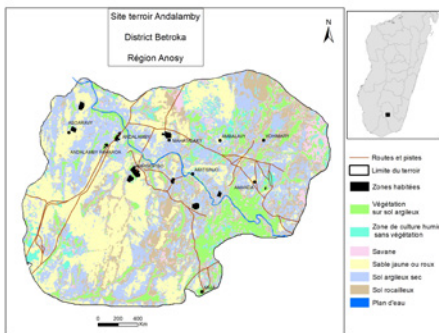
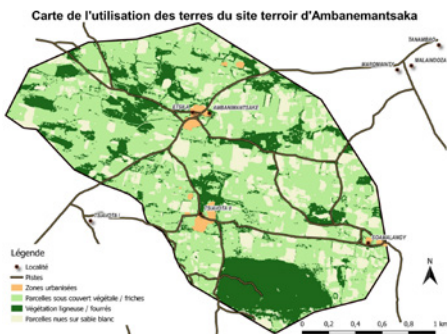
IMAGERY FOR MONITORING AND ASSESSMENTS

The Airbus Foundation provided about 15,000 square kilometers of satellite imagery to its partners in assessing various crises such as flooding, along with monitoring-at-large and for medical activities to support local populations. Some partners have used the Airbus OneAtlas platform to directly task the new Pléiades Neo satellites with their high-resolution coverage – which directly led to a ramp-up of requests for 30-cm. resolution imagery from Pléiades Neo.

In one use case example, satellite images were utilised by Aviation Without Borders (ASF) across districts in the south of Madagascar that were severely impacted by climate deregulation.

This complemented aerial photography to create land-use maps and help monitor cultivated areas and reforestation.

High-resolution satellite images have been used by Action Against Hunger to help count buildings in support of a survey on technologies in response to the cholera epidemic in northeast Nigeria. The French Crisis and Support Centre (CDCS) provided satellite imagery from its Airbus Foundation partnership to encourage actions led by the United Nation’s Food and Agriculture Organization as part of the SWALIM project to prevent and limit the impact of drought in Somalia, Kenya and Ethiopia.



Satellite imagery in humanitarian aid



Flood area in Pakistan, before/after view - Pléiades ©CNES. Distribution: Airbus Defence and Space, 2022



Refugee camp in Chad - Pléiades ©CNES. Distribution: Airbus Defence and Space, 2022

SATELLITE IMAGERY FOR EMERGENCY SITUATIONS

The collaboration between the Airbus Foundation and the Global Logistics Cluster provides humanitarian partners with critical access to high-quality satellite imagery during emergencies. In 2022, the Airbus Foundation's imagery enabled humanitarian actors to map out the damage caused by natural disasters in Pakistan, Nicaragua and Venezuela, and to better coordinate the response for affected communities.

Images also have been used to assess infrastructure, conduct population studies and support local interventions in refugee camps and near border crossing points in various countries – mainly in Africa.

DETAILED MAPS FOR IN-THE-FIELD OPERATIONS

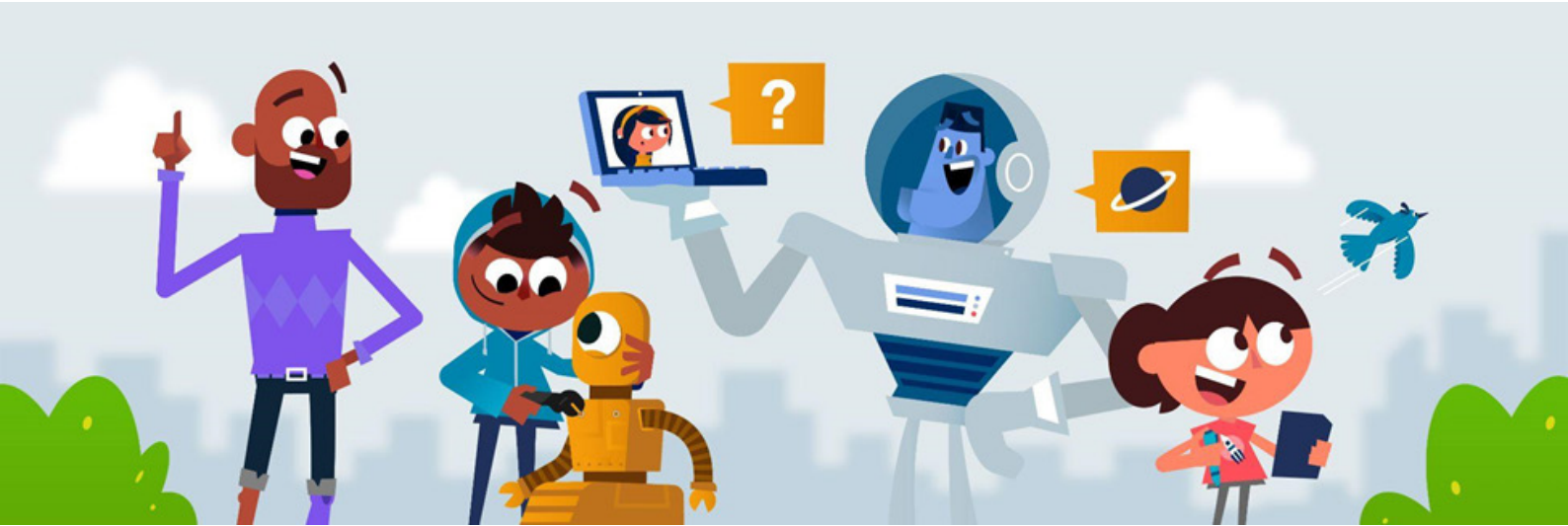
In addition to the images provided to Doctors Without Borders, a country-wide basemap layer with streaming access also was made available for integration into its applications.

The use of specific images by the Missing Maps Project was authorised to obtain support from the HOT (Humanitarian OpenStreetMap Team) community in creating more detailed maps to support

local operations. Missing Maps is a collective of organisations founded by the American Red Cross, the British Red Cross, the Humanitarian OpenStreetMap Team, and Doctors Without Borders.

Satellite imagery training also was provided to some of the Airbus Foundation's partners – namely the International Federation of the Red Cross and the World Food Programme's Global Logistic Cluster.

YOUTH DEVELOPMENT



Inspiring the next generation

Lighting a spark of interest in Science, Technology, Engineering and Mathematics (STEM) with fun educational content is key in supporting youth development. If the young generation is inspired today, it can start on the path to becoming the builders, makers, and innovators of the future.

The Airbus Foundation believes that it can help develop such personal skills as teamwork, communication and the curiosity to learn – ultimately giving ambition to youngsters and helping to prevent them from dropping out of school.



Marie Curie

Polish/French physicist and chemist

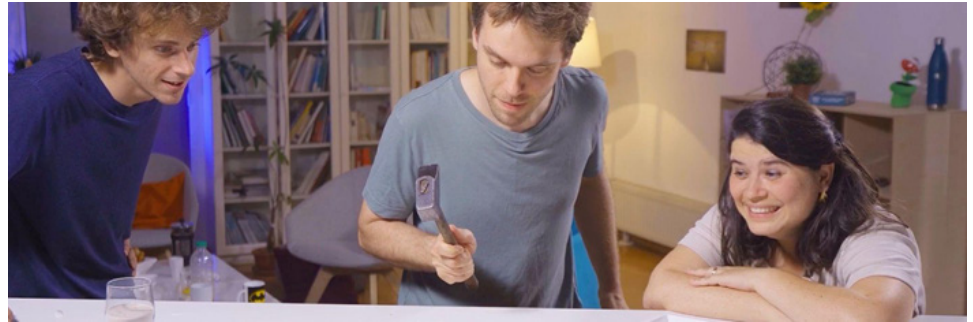
Nothing in life is to be feared, it is only to be understood. ”

The Airbus Foundation Discovery Space platform

The Airbus Foundation launched a new and improved Discovery Space platform to encourage interest in STEM subjects. It includes videos, tool kits, experiments and other resources that cover STEM disciplines. The content is tailor-made for users aged 8 to 18. Completely free to access, students can visit the website and learn at their own pace. The platform also is an excellent resource for use by teachers and parents in imparting an interest in STEM subjects to the next generation – either in a more formal classroom setting or informally at home.

The platform's content – developed in collaboration with educational experts – is fully aligned with the Airbus Foundation's support of the United Nations' Sustainable Development Goal #4: Ensuring inclusive and equitable quality education, and promoting lifelong learning opportunities for all.

Everyone can benefit from these free resources, and thanks to the Airbus Foundation's non-governmental organization (NGO) partners, the content is delivered directly to many underserved communities.



The resources on the Discovery Space platform are organised around three themes designed to resonate with specific age groups:

- **Discover, for ages 8 to 12:** A series of fun animations introduce the amazing world of flight, covering a broad range of topics from birds to Moon missions;
- **Experiment, for ages 12 to 14:** The programme takes a more interactive, experimental approach to STEM-related subjects, because the best way to learn is by doing; and
- **Inspire, for ages 14 to 18:** Its focus is on building self-confidence and equipping young people with the skills they need to flourish as they become adults.

Throughout 2022, the Foundation continued to enrich the Discovery Space platform's content. Children in the 8-12-year-old age bracket can now understand how innovation projects aim to shape the future.

New experiment content has been created for teenagers from 12 to 14 years old, with six videos and booklets to practise experiments at home or in the classroom. The content offers an excellent opportunity to talk about women in science, environmental impact and vocations – viewed through the lens of science.

The Foundation also took steps to reach a wider audience, which includes making Discovery Space content available in German, Spanish, French and English (with some content also available in Arabic).



“ Rachel Schroeder
Managing Director of the Airbus Foundation

Discovery Space provides resources to encourage young people to continue learning, inspire them to stay in school, and support them to become constructive global citizens.

With our new Discovery Space platform, we're further enhancing this outreach by providing high-quality and ready-to-use content in multiple languages.



The Moon Camp Challenge

The Airbus Foundation renewed its strong partnership with the European Space Agency (ESA) and the Autodesk software corporation on the Moon Camp Challenge in 2022. This yearly competition invites students worldwide to imagine tomorrow's functional lunar settlements with the help of 3D modeling tools. Submittals are reviewed by a jury composed of representatives from ESA, Autodesk and Airbus.

The Moon Camp Challenge's fourth edition continued the success of previous years. A total of **2,597 projects** were submitted in the three categories with different levels of complexity: Discovery, Explorers and Pioneers. These submissions came from 53 countries and involved more than **5,600 students**, who were supported by nearly **600 teachers**.

Top performers in the Explorers and Pioneers categories were given the opportunity to meet digitally with ESA astronaut Franck De Winne. Each team was able to ask questions that De Winne answered with fun and accessible information, creating a memorable experience for the children.

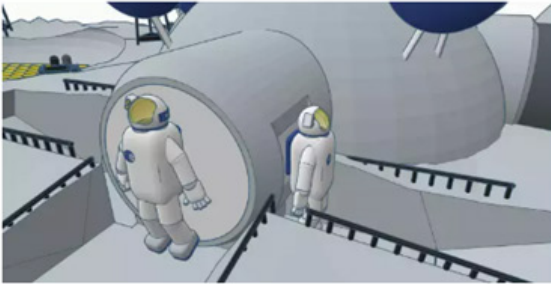


The Moon Camp Challenge

Winners: Moon Camp Explorers (up to 14 years old)

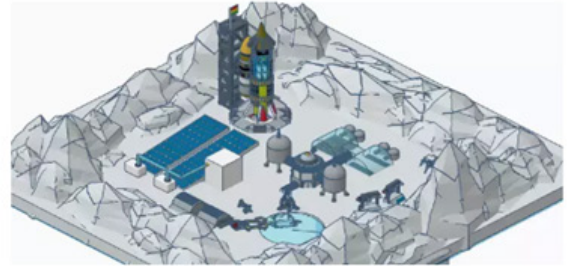
From ESA Member States

1. Hermaszewski Moon Camp (Poland)
2. Polus Satus (United Kingdom)
3. European Space Hotel (The Netherlands)



From non-ESA countries

1. Killa Wintata (Bolivia)
2. Utopia (India)
3. Kalpana (India)



Winners: Moon Camp Pioneers (15-19-years-old)

From ESA Member States

1. Here we are back! (France)
2. Conatur Lunar (United Kingdom)
3. Artemis (Romania)



From non-ESA countries

1. Queen Cells (China)
2. AH (China)
3. CosCallisto (Turkey)



THE MOON CAMP CHALLENGE GOES TO CHINA

The Airbus Foundation led a partnership with the Engineering & Technology Education Research Centre (ERTEC) in Shanghai, China to accompany 640 children on space topics with dedicated workshops. This gave birth to some amazing submissions that impressed the ESA, Autodesk and Airbus expert jury.

A digital ceremony (made necessary due to the country's COVID-19 lockdown) was organised for the Chinese winning team in the Pioneers category (15 to 19 years old). The students were able to mix science, engineering, physics and teamwork to set up their Moon camp using Autodesk's Fusion 360 design software application.

Like all the other winning teams in Poland, Bolivia and France, the top Chinese team earned a 3D printer to put its modeling competencies into practice.

The Moon Camp Challenge

OTHER MOTIVATIONAL CLOSING SESSIONS FOR THE MOON CAMP CHALLENGE

Closing ceremonies were organised in certain countries thanks to local European Space Education Resource Office (ESERO) organisations.

In France, for example, kids were invited to La Cité de l'Espace scientific discovery centre to learn more about space and to meet experts from the country's national space organisation, CNES (Centre national d'études spatiales).

All of these events helped to inspire young students about aerospace and to take the first steps in achieving their dreams.

A NEW MOON CAMP CHALLENGE IS LAUNCHED IN 2022

The Moon Camp Challenge's fifth edition was initiated in September and has new features. It was opened to a wider audience – as the projects may be submitted in any language (automatic translation of the projects is allowed).

A new category called Moon Camp@school has been created as an online sharing community for teachers and educators to showcase their students' Moon Camp-related school projects (such as 3D printed designs, experiments, classroom projects etc.). This is a non-competitive category.



ESERO France in la Cité de l'Espace - Credits CNES

Deployment of programmes with NGOs

The Airbus Foundation continued its long-standing yearly partnerships with local non-governmental organisations, such as the Alliance pour l'Education, Télémaque, and FACE in France; with Ablaze and EDT in the UK; Fondo Unido in Mexico; the Kenyan and the Spanish Red Crosses, and others. The Spanish partnership was particularly notable because it engaged employees from all Airbus sites across Spain.

Each NGO partnership programme is built on local needs and has its own specificity. All of them aim to inspire children, while also developing the key soft skills that will help them in the future while discovering the professional world.

The Foundation's partnerships for its youth programmes spanned **17 locations in Europe, Africa, Asia, and the Americas**. During 2022, more than **250 Airbus volunteers** participated. The programmes directly **reached more than 9,000 disadvantaged young students**, including a pilot project for children living in a refugee camp.

In the final quarter of 2022, the Airbus Foundation also relaunched certain partnerships that were not possible during the COVID-19 pandemic, including The Little Engineer in Africa and the Middle East, Grands Frères Grandes Soeurs in Canada, and the Exploreum Center in the U.S.



Deployment of programmes with NGOs

ALLIANCE POUR L'ÉDUCATION - UNITED WAY

Locations
Toulouse and Elancourt, France

Objective
To prevent students from dropping out of school and to favour a chosen orientation with social and professional integration through the application of two programmes:

1 Airbus Foundation/ Flying Challenge

Since 2012, this programme proposes individual mentoring with the support of Airbus volunteers, who follow the students in their schooling according to their needs – awakening them to culture, and helping them in their orientation until their professional integration. It transitioned to the Defi Jeunesse in 2020, although some students remain part of the programme.

2 Défi Jeunesse

This programme aims to broaden the perspectives of participants by organising a connection with the professional world and by providing realistic experiences. With the support of Airbus volunteers, the programme encourages young people to think about their goals and aspirations for the future.



34 students

38 Airbus volunteers

Impact:

100% of young people better understood their lessons

80% experienced an improvement in their grades

87% had more confidence in their career path.

1,416 students

82 Airbus volunteers

Impact:

63% of students had a clearer view of their future vocation

70% had increased knowledge of the world of work



“ Airbus volunteer

I really enjoyed talking with these students and conveying my professional perspective, while also giving them more confidence. ”

Deployment of programmes with NGOs

FACE SUD PROVENCE

Locations
Marignane, France

Organised with FACE Sud Provence, the “Discovery Airbus Foundation” project involved eight workshops per class, leading to a global challenge where the students answer a question and create a project with their team.



This project had the following goals:

- Engage employees from Airbus Helicopters in a civic and responsible endeavour;
- Enable young schoolchildren to discover a local company and its professions;
- Contribute to bringing the school closer to the world of business, and promote a chosen and informed educational orientation.

A jury composed of representatives from Airbus Helicopters, the Airbus Foundation and members of la Cité Educative Vitrolles selected the winning team – which was provided with the experience of a helicopter flight.

71 students

30 Airbus volunteers

TÉLÉMAQUE

Locations
Toulouse, France

Each participant in this programme is accompanied by two mentors for six years: a mentor from his/her school, and an Airbus mentor.

Within this approach, the programme has four orientations: socio-cultural openness, discovery of the professional world, self-affirmation, and empowerment. Télémaque brings the mentees together monthly in each territory for company visits; along with a Télémaque Potentiel programme (speaking out, self-confidence, combating self-censorship); and cultural, sporting and civic visits. Each young person receives financial support in the form of an annual grant used to fund the activities and a personal project built with the mentors.

16 students

14 Airbus volunteers

Impact:

88% of participants gained confidence in their chance of success at school

84% discovered jobs and professional organisations

84% discovered new cultural activities



“ Airbus volunteer
I have loved mentoring through Télémaque. This is an incredible adventure because it allows us to take a step back on our own path, to understand the new generation, and to work together in improving ourselves! ”



Deployment of programmes with NGOs

ABLAZE

 **Locations**
Filton, UK

Twelve face-to-face workshops were organised with local students, covering the goals of:

- Inspiring and encouraging aerospace engineering-related educative content through STEM;
- Developing key “soft” skills that will help them in the future;
- Developing technical knowledge; and
- Creating an understanding of the professional world.

The workshops were led by the Ablaze independent charity, together with volunteers from Airbus. All students who participated in the programme in 2022 made a fantastic start to Year 10 (GCSE year) and have a high rate of attendance and positive behaviour.

20 students

13 Airbus volunteers

Impact:

100% of students had a clearer view of their future vocation

100% improved their confidence and self-esteem

100% had increased knowledge and experience of the world of work



“ Airbus volunteer
The students’ confidence improved massively. In the final weeks, even those who were shy in the beginning were speaking up.
Their team-working skills also improved significantly. ”



Deployment of programmes with NGOs

SPANISH RED CROSS



Locations

Getafe, Illescas, Albacete, San Pablo, Tablada and the Centro Bahía de Cádiz (CBC) in Spain

Since 2012, this Airbus Foundation project has focussed on improving the skills of young people in relation to their work and personal lives. It helps them to uncover their vocations and shows the different training paths available for their professional future.

As a result of the COVID-19 pandemic, the programme made a methodological change – encouraging and promoting digital resources and activities, as well as bringing the format together from a more global perspective.

The result of this work was the creation of a new educational project called “Discovery Science Week.” It brings the functionalities of science and technology closer to young people, particularly in the aerospace sector. Through different activities and audio-visual resources, various themes were developed, such as: the role of women in STEM disciplines;

hydrogen as a sustainable fuel; flight mechanics; and the importance of mathematics, among others.

All resources designed for the project are hosted on an open website to facilitate the access of schools to the project materials throughout the academic year, and to better plan the workshops to be held with students (www.cruzrojajuventud.org/discovery).

In 2022, volunteers and sponsors – together with students from some schools – recorded six explanatory videos that introduced each of the project’s themes. This brought the content closer to the interests of young people in a more fun and dynamic way, thus promoting interest and attention to the STEM competencies, as well as the activities proposed in each of the themes that are part of Discovery Science Week.



5,000 students

30 Airbus volunteers from the Airbus factories across Spain, and from the Centro Bahía de Cádiz (CBC)

**“ Mario Chillon
Airbus Defence & Space
It was amazing to share my curiosity in science with high school students, as well as discussing such important work tips as ‘soft skill,’ empathy, teamwork, respect and focus on people. ”**



Deployment of programmes with NGOs

FONDO UNIDO - UNITED WAY

 **Locations**
Mexico



The Airbus Foundation has deployed the Airbus Foundation Discovery Space (AFDS) programme with Fondo Unido since 2019 to support children from underprivileged backgrounds who attend the “Ing. Joaquin Gallo Monterrubio” school in Mexico. With the support of Airbus volunteers, the programme’s goal is to inspire kids to stay in school, to spark their interest in STEM, and to empower them to seize opportunities.

45 students

25 Airbus volunteers



Deployment of programmes with NGOs

YOUNG FALCONS OF KOREA

Locations
Seoul, South Korea

The Young Falcons of Korea is a training and mentorship programme that provides interesting aviation-related programmes for youth, and prepares them for the gap semester policy with various relevant activities.

20 students

6 Airbus volunteers



Impact:
95% of students had a clearer view of their future vocation

90% improved their grades

90% improved in confidence and self-esteem



EDT

Locations
Broughton, UK

Airbus Foundation partners with EDT on the Discovery Space Youth Programme in Broughton. This programme inspires local students through STEM and aerospace engineering educational content, and helps them to develop technical knowledge and key “soft” skills essential for the workplace. Workshops are run by EDT with Airbus volunteer mentors.

1,062 students

25 Airbus volunteers

Impact:
89% of the students involved in the program have increased their interest in STEM

74% of the students have increased their knowledge of the world of work



Deployment of programmes with NGOs



ROCK YOUR LIFE!



Locations

Munich, Germany

Rock Your Life! supports the development and delivery of “Expert Rounds”, “Radio Episodes” and “Space Excursion” activities for students between 13 and 16 years old.

22 students

7 Airbus volunteers

Impact:

85% of students have a clearer view of their future career

81% of the students have increased their knowledge of the world of work

HABA



Locations

Munich, Germany

HABA Digital has extensive experience in the practical teaching of digital education for children from five to 12 years old, with the creation of courses, workshops, holiday camps, information events and other formats for children and families, schools and day-care centres and companies – both offline and online. In addition to the definitive content, HABA Digital also conveys a holistic understanding of technology, comprehensive media education and relevant future skills.

HABA Digital is creating a workshop for the Airbus Foundation, using some of the Foundation’s Discovery Space content and animation. It also coaches Airbus volunteers and supports them in creating workshop guidelines for the running of sessions autonomously – while assisting them to deliver seven sessions in Germany.

148 students

3 Airbus volunteers



Ben

“ Student at the GS Blütenburgstraße Elementary School in Munich

I want to learn more about space and programming. I really hope that we can take part in another workshop and even visit the Airbus Campus with the huge rocket. ”

Deployment of programmes with NGOs

KENYA RED CROSS

The Airbus Foundation's Discovery Space programme has been implemented in six schools within Mombasa county – one school per sub-county – with the support of six trained Kenya Red Cross volunteers.

Milestones included the creation of critical thinking sessions in schools, increasing interest in STEM subjects, and using the critical thinking approach in problem-solving. An arts and crafts platform enabled students to create a model airplane from locally available materials to gauge their creativity, while a 3D design project allowed students to conceive a hydrogen-fuelled aircraft.

Additionally, field visits to an airport were conducted, while certain students selected by the Airbus Foundation showcased their skills in innovation expos.

925 students in total:

689 students in six primary schools from the different sub-counties

149 students (115 female and 34 male) in orphanage programmes as indirect beneficiaries

87 children from special school programmes (probation centres) with an adapted programme

6 KRCS volunteers were trained on the AFDS Concept, robotics, and basic 3D skills



PHOENIX SPACE / JUSOR

In 2022, the Airbus Foundation worked with Phoenix Space – a partner that develops STEM-focused educational courses and activities – to further the education of displaced and disadvantaged students. This led to the creation of lessons that accompany certain experiment videos available on the Airbus Foundation's Discovery Space platform.

With the support of Jusor – a leading global actor in educational and entrepreneurial programmes for Syrian children and youth – a pilot STEM summer camp was created in Lebanon for refugee children.

The two-week summer camp provided the opportunity to perform five experiments in the classroom. This involved the focus on satellite launches and calculations of their orbits, followed by a discussion about the day-to-day applications and uses of satellites in daily life.

ENVIRONMENT



In 2022, the Airbus Foundation continued to work on the development of its environment pillar, focussing on climate change mitigation and monitoring, climate change adaptation and disaster prevention, as well as protecting biodiversity.

The Foundation moved forward on its programmes with the International Union for Conservation of Nature (IUCN) and the Connected Conservation Foundation (CCF), while also engaging with the Foundation's humanitarian partners. This enabled the review of each organisation's environmental strategy and objectives with the goal of identifying potential projects where Airbus Foundation resources could be used in developing solutions.

In addition, the Foundation signed a new partnership with Ocean Polaire for its Polar POD ocean research project.

In parallel, the Advisory Council for the Environment continued to meet and monitor new requests for Foundation support, as well as proposing improvements and solutions based on evolving environmental needs.



Juan Verde, member of the Advisory Council for the Environment

The Airbus Foundation can help to address today's environmental challenges by sharing the Airbus portfolio of services, its high-tech products, know-how, relationships and resources with NGO partners and other related institutions that contribute to providing important solutions to the climate crisis.

Collaboration with the Connected Conservation Foundation

This included continuing the collaboration with the Connected Conservation Foundation (CCF) to support the preservation of wildlife and natural ecosystems in South Africa and Kenya through the use of satellite imagery.

Together, a five-year roadmap was conceived to equip park managers across CCF's partners – and beyond – with pioneering 30-cm. high-resolution satellite imagery. The partnership already has enabled poaching incidents to be detected from space, thereby aiding criminal investigations and supporting the case for the declaration of new protected areas in northern Kenya.

CCF brought together the Airbus Foundation's newly donated 30-cm satellite imagery with on-the-ground technologies, data scientists and field partners to explore important breakthrough questions, such as: "How can satellite imagery and artificial intelligence modernise wildlife surveys in Africa?"

Wildlife surveys in savannah environments are typically done using aerial counts from small aircraft. This can take months to complete, and is expensive in terms of aircraft rental costs, fuel and human resources. CCF, the Airbus Foundation and other partners set about exploring a feasible replacement method to reduce the time and cost of wildlife surveys.

Three approaches for the detection and identification of animals in satellite images were trialled, using: the human eye with field-based expertise and insight; computer vision and open-source (pre-trained) neural network models; and a tailored convolutional neural network model, trained on a set of synthetic animal images.

This novel approach enabled all three approaches to be compared against on-the-ground wildlife sightings that were reported by field teams at the same time as satellites had passed overhead.



Collaboration with the Connected Conservation Foundation

Although some results showed promise, significant challenges remain. The algorithm detection and visual human inspection of 30-cm. satellite imagery did not give conservation managers the required level of accuracy in species classification when compared to traditional wildlife surveys. However, CCF and the Airbus Foundation believe sharing this learning with the wider conservation sector can help teams and other organisations grow from the experience, learn from it, and improve their own research.

One notable positive outcome was the production of a heatmap style of potential sightings, acting as an indicator of “where to look” for human visual sightings within an image. Scanning satellite imagery is time-consuming and requires exceptional diligence, so consulting with an artificial intelligence model to highlight areas of potential detection is valuable – especially when locating hard-to-find animal colonies in remote areas.

Other use cases are now being explored for different species and situations beyond African savanna environments, as well as understanding how this valuable data can be used for monitoring an ecosystem’s vital signs, ensuring healthy and connected habitats for a wide range of species.



Connected Conservation Foundation and the Airbus Foundation launched an open call to champion biodiversity conservation from space in an effort called: “Satellites for Biodiversity Conservation.” The goal is to investigate the feasibility of using high-resolution satellite imagery for biodiversity conservation. This open call invited individuals and not-for-profit organisations to join a new grant programme that supports projects seeking to monitor and recover threatened species using high-resolution satellite data.

The application period for “Satellites for Biodiversity” was closed in February 2023, attracting a total of **47 applications**. Winners will receive access to the most advanced optical satellite imagery at 30-cm. resolution from spacecraft in Airbus’ Pléiades Neo satellite constellation, along with 50-cm. resolution imagery from the Airbus-built Pléiades 1A and Pléiades 1B satellites, as well as \$5,000 in funding.

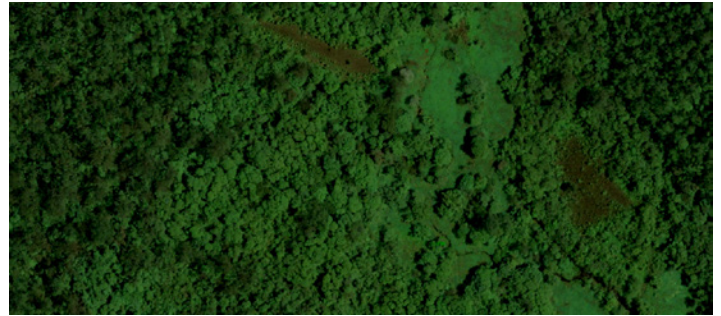
Another objective in 2022 was to increase Airbus employee involvement in supporting Airbus Foundation partners’ environmental objectives. Using the +impact platform, the Airbus Foundation was able to promote the work of CCF’s fundraising. In addition, Airbus initiatives also identified CCF as a target of donations in the context of an international recruitment event in the Airbus companies.

Partnership with the International Union for Conservation of Nature

The International Union for Conservation of Nature (IUCN) is the global leader in the measures needed to safeguard the natural world. Its mission is to influence, encourage and assist societies to conserve the integrity and diversity of nature, and to ensure that any use of natural resources is equitable and ecologically sustainable.

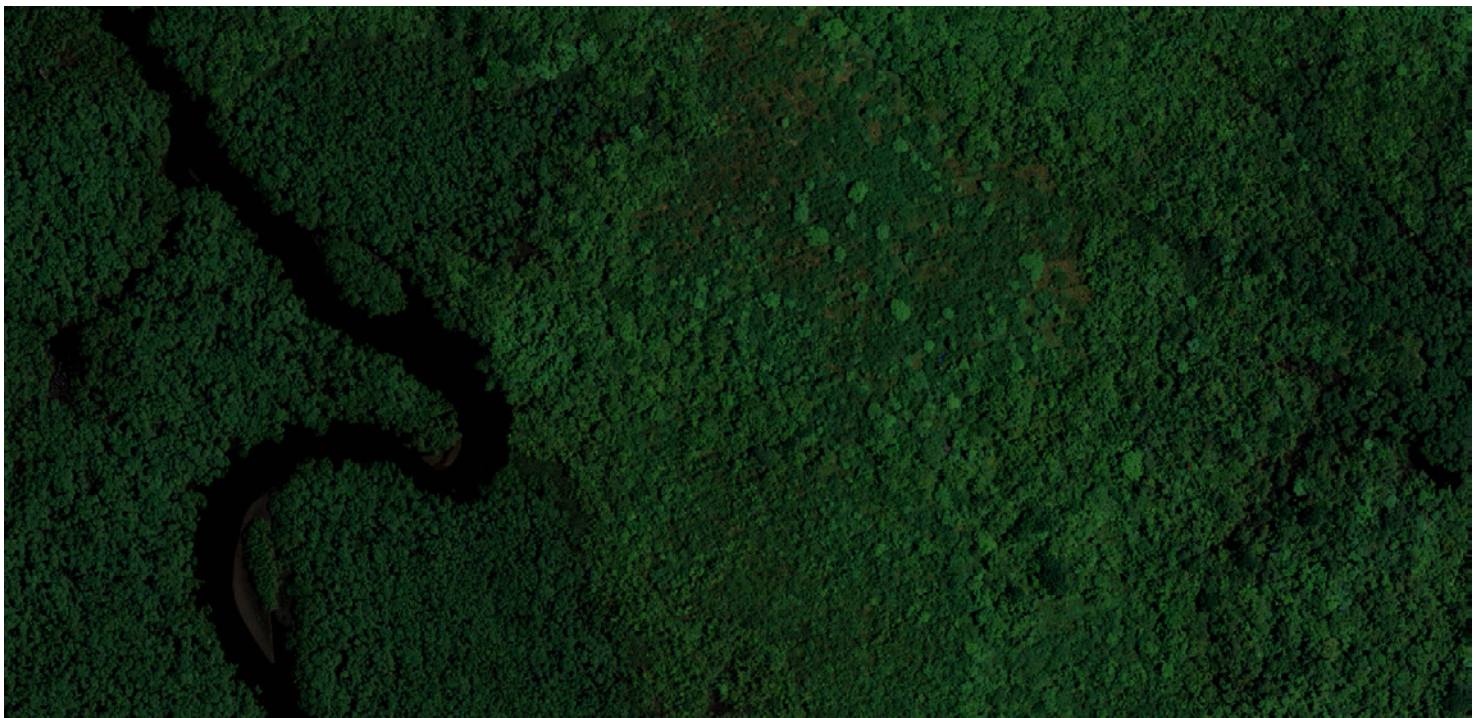
IUCN's current focus builds on the five pillars of its 2020-2030 programme: People, Land, Water, Ocean and Climate to deliver concrete and tangible positive impacts by using five pathways to transformative change: Recognise, Retain, Restore, Resource and Reconnect.

Partnering with the Airbus Foundation enabled IUCN to widely monitor ecosystem restoration activities, benefiting more than 40 countries using a global framework called the "Restoration Barometer." All reporting and associated indicators were digitised and centralised into a geospatial portal to be deployed. It reports globally on the restoration benefits of carbon sequestration, biodiversity impacts and socio-economic benefits.

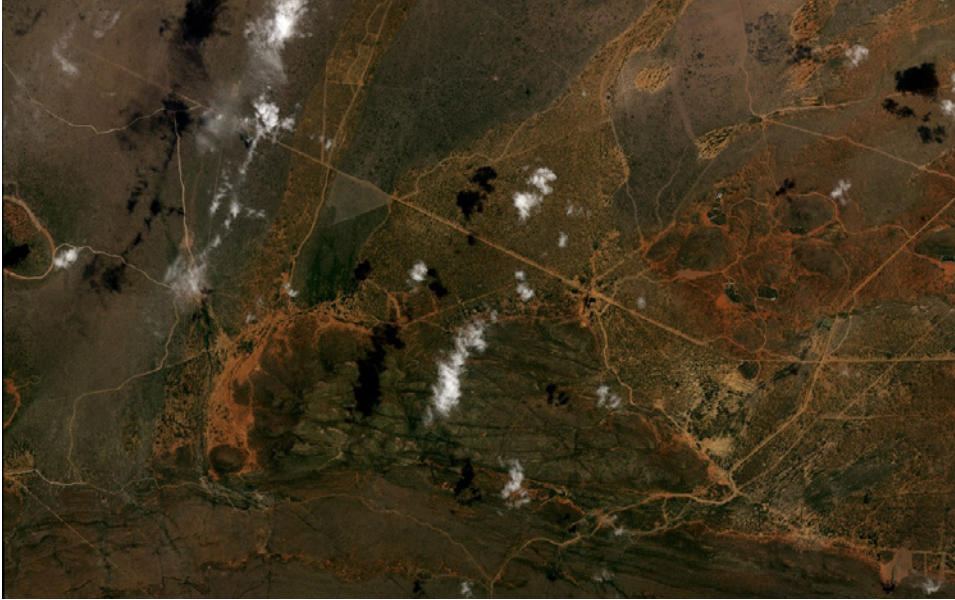


The Foundation provides **satellite imagery training and technical support on technologies** where needed to onboard the team and to support field teams on solution rollouts.

Additionally, the Foundation enabled the provision of technical data and project management, including development and analysis services to contribute to the validation of IUCN's forest restoration barometer. This involved providing images, data and the support of a technical team to carry out the analysis, including the expertise acquired with service from Airbus Defence and Space's Starling digital platform.



Partnership with the International Union for Conservation of Nature



The Starling digital platform combines more than half a million up-to-date satellite images with powerful machine-learning analytics to map the primary forests and monitor deforestation.

Additional data, such as boundary lines and protected areas, were employed as well – together with supply chain data provided by users for various commodities, such as palm oil, cocoa, pulp and paper. This data, along with powerful automated analyses developed by Airbus experts for the Starling platform, contribute to a better understanding of the dynamics of forest cover and the impact of human activities to protect vital areas like rainforests and to monitor the progress of forest restoration.

After one year of collaboration between the Airbus Foundation and the IUCN, 500 images were received and are being integrated into a processing chain that provides indicators which could feed the “Restoration Barometer.” The methodology and the development of this chain are refined in parallel with forestry experts to finalise the barometer’s indicators. Two geographical areas in South America will be explored to validate the methodology.

“**Jaime Webbe**, member of the Advisory Council for the Environmental

The technology, innovations and creative solutions that the Airbus Foundation can call on to help organisations solve the planetary crisis is a game changer. I am excited to see how this potential translates into measurable positive impacts for our environment.”

Polar Pod Expedition

The Airbus Foundation signed an agreement with Océan Polaire (the non-profit organisation of renowned French explorer and scientist Jean-Louis Etienne), to support the Polar POD expedition in both its scientific programme and the mission's operational phase. With this agreement, the Airbus Foundation will provide access to such products and services as Earth observation satellite data. Additionally, the Foundation can offer capabilities for reliable high-speed telecommunications.

The maritime expedition, led by Océan Polaire aims to better understand global environmental and climate dynamics. Running for multiple years, it will achieve this by monitoring the Southern Ocean using an innovative inhabited low-carbon vessel: the Polar POD. The Polar POD has no engine and will be propelled by the Antarctic Circumpolar Current, assisted by sails and wind power.

The Polar POD's goal is to measure air-sea exchanges to improve climate studies, detect man-made impacts (such as microplastics, pesticides, etc.), and analyse the ocean's weather, waves, winds and colour to improve satellite calibration.

“This mission is well-matched with our priorities, and perfectly complements other projects supported by the Airbus Foundation – which have, until now, focussed on land-based activities such as wildlife and ecosystem protection and reforestation monitoring.”

Rachel Schroeder, Managing Director Airbus Foundation



Jean-Louis Etienne

French explorer and scientist

Polar POD will explore the Southern Ocean, which has the world's largest ocean data gap. The resulting data will be shared by scientific institutions worldwide, and also be available for collaborative educational projects.

