Table 3.1b8: Work package description – WP8

Work package number	WP8	**Lead beneficiary**		
Work package title	Communication, Outreach, Art and Science			
Participant number				
Short name of participant				
Persons/months per participant				
Start month	1	**End month**	36	

Objectives

The discovery of gravitational waves and, in particular, the revolutionary discovery of a neutron-star merger in August 2017, has ushered astrophysics and cosmology into what is called the Multi-Messenger Era. In parallel the Geoscience observatories, use more and more a "multi-modal" method, the association of different probes to understand the earth's interior and more generally geological structures, for theoretical studies and prevention of risks

In particular the objectives of this task are:

a) To inform the general public, students and educators of the background and recent discoveries in the exciting scientific interface between Geoscience and Astroparticle Physics;
b) To inform how science at the interface between these two fields impacts upon society;
c) To bring science in Geoscience and Astroparticle Physics into dialogue with Traditional Environmental Knowledge (TEK), toward data sharing and collaboration between Indigenous and fundamental scientific researchers;
d) To inspire young people to follow careers in astrophysics as well as geoscience;
e) To promote the image of worldwide collaboration as a prerequisite for advancing science.

Based on our past experience, we will use the most successful, specifically designed tools, which ascertain the widest visibility. In particular we will combine the implementation of a web platform, including virtual tours of the scientific infrastructure and interactive apps (applications), with some outreach participatory activities and a very rich program of Art and Science, which brings the work of APOGEIA into dialogue with TEK and empirical practices of planetary sensing; equipping the public with a sense of their own contribution to the generation of knowledge in this field. In our view the Art and Science perspective is the most effective tool for targeting and engaging a wide audience towards this new and exciting field of knowledge. The world-famous artist Tomás Saraceno — who has exhibited a constant attention to both fundamental science and to the risks and human impact on the Geosphere and environment — will lead this special program for attracting the attention of the public at large to these subjects and their interconnection. His artistic process will bring the fundamental and applied science and technology of APOGEIA in dialogue with ecological and planetary sensing data from Indigenous scholarship, in the service of climate justice.Various digital tools, interdisciplinary artistic methods, apps, online and in person exhibitions and other creative tools will be used. Studio Tomás Saraceno will lead this task in collaboration with some of the most relevant artists, who have already indicated their interest or even carried out artistic works related to the specific contents of APOGEIA research program. Among them Donald Fortescue, artist and Professor of Art and Design at the California College of the Arts in San Francisco, has been developing several artistic projects in connection with the IceCube and KM3NeT detectors and their natural environment and the artist Tim Otto Roth (www.imachination.net), prepared an immersive installation inspired by deep sea and ice neutrino observatories in cooperation with APPEC. The Art and Science research about the volcano Snæfells, carried on by CNRS team from IP2I with the French photographer Carol Müller, (http://www.carolmuller.fr/index.html) and the Volcano Museum Stykkishólmur of Iceland, Eldfjallasafn, will be also promoted and included in our program. And a few others...

Description of work. The goals of our outreach and dissemination program will be accomplished through the realization of several complementary actions, organized in three main tasks. The heterogeneity of actions, languages and communication tools, that we will use, reflect the ambitious aim of reaching a very large audience in the complex landscape of contemporary global communication: an even more complicated goal during and after the COVID -19 crisis. The integration of these languages and tools will produce constant interplay, overlap and connections among the actions and the actors of the three tasks.

The tasks will be achieved using the following tools:

a) The creation of an astro-geo-convergence web platform in close collaboration with other Astrophysics and Geoscience portals: our portal will provide news, videos, images, educational material, press related material as well as the virtual tours and other interactive apps developed within the project;
b) Material to the attention of disabled people;
c) Realize virtual visits to most of the infrastructures of APOGEIA. They will allow citizens and students not only to visually explore them, at times employing real images or artistic views, but also to explore the science performed within them;
d) Apps, online material and installations linking Art, Science and Traditional Ecological Knowledge (TEK), devoted to attract the general public toward the topics of APOGEIA;
e) Preparation of an exhibition at the interfaces of: Geoscience and Astrophysics; Art and Science; contemporary and traditional scientific knowledge. This exhibition draws from the interdisciplinary example of the successful exhibition "The Rhythm of Space" https://sites.ego-gw.eu/ilritmodellospazio/ and "Gravity. Imaging the Universe after Einstein" https://www.youtube.com/watch?v=FgTwBbCfD6o, already curated by some of the participants.

Task 8.1Education and, outreach

We plan to design and realize a web platform, devoted to outreach, communication and dissemination of the astro-geo convergence. The first goal of the web platform is to connect and make available in a coherent framework all documentation materials, outreach products and dissemination tools (video, apps, virtual visits…) already realized by the partners. New materials and utilities (as the virtual tours of scientific infrastructures, see task 4.3) will enrich the platform and make it a global reference point for information, contents and news related to this new astro-geo field, both for the public at large and the scientific community.

This will also increase the overall visibility of the project, the dissemination and advertisement of the new produced material. The use of all the social media and channels, as Twitter, Facebook and YouTube will be another crucial ingredient for the widespread dissemination of our material.

A scientist of XXX will be responsible for the update and maintenance of the astro-geo-convergence web platform. The scientist will be a key person in this work-package, responsible for the prompt publication of the news items, the distribution of the press releases in all participating countries, the delivery of the exhibition items.

The setting up and continuous updating of this outreach platform is a major tool of this task, as it will host the links to most of the other proposed outreach activities. The portal's language will be in English only. However, the press releases, videos, apps, virtual visits and educational material, will be either translated or subtitled from English in other European languages .

Deliverables D8.1-2 and Milestone M8.1 The web site will be operational at the 6th month (D8.1) After one year from the beginning of the project (M12) the state of the art of the web platform and it's effective functionality and impact will be assessed in a virtual meeting among all the partners involved in the WP8

and, possibly, outreach and communication responsible of all partners (D8.2). Other didactic and/or participatory activities will be performed in collaboration with all partners. The new proposed method can enrich existing programmes by demonstrating the new types of sensors (i.e. distributed) along with traditional ones (individual) and visualising results from the subterranean investigation. This will provide added value to geology education and especially the near-surface structure of the earth, and will also help raise public awareness in terms of seismic hazard and safety in urban centres.

Other outreach activities targeting high-school students will be developed around seismic noise, whose measurement and attenuation is a key issue for gravitational wave detectors. We will develop related applet and web resources and organize hands-on sessions in the classrooms to explain and demonstrate the seismic attenuation, e.g. by building simple seismometers to measure the seismic noise, and building simple suspension systems to illustrate the attenuation of the seismic noise with pendula. Similar activities could also target the general public, once the restrictions due to the covid-19 crisis will be overtook.

Both Earth and Heaven are environments very far from our daily experience. For this reason, it could be very useful, for outreach and dissemination purposes, to imagine, project and realize immersive and virtual experiences of the exotic environments and phenomena of Astrophysics and Geosciences. Some of the partners already realized this kind of installations, (https://sites.ego-gw.eu/ilritmodellospazio/woa-v-napolano/, https://youtu.be/UYbPqX47Swg?list=PLbsqUzxZlcP5VkHBc52VdVzp29KrlliF7). One of the action of this task will be to realize prototypes of an immersive experience related to the topics of the project.

We will also develop virtual tours of the various infrastructures based on free available software. In the era of the post-COVID crisis, this is surely an experiment not only useful for the large public to become directly involved in the science of the Geosciences-Astroparticle starting community, but also for students and scientists themselves to retrieve useful information with no need of physical access.

The APOGEIA virtual tours (D8.3) will be addressed to scientists, school and university students, and the large public. To minimize travel costs/environmental impact for their production, not all of them will be filmed in person, also because some infrastructure, such as KM3NeT or other geoscience sites, are not accessible in person. The APOGEIA community is fully committed to provide necessary information, photographs, artists views, videos, which will be collected in a web site and will be integrated in the virtual tour software. In some these cases, artist views as well other tools, e.g. cameras at the sites (for instance data from a camera installed at KM3NeT) will be used. The cooperation in this project of participant infrastructures is ensured. Sites such as the LNGS, Canfranc and other easily accessible networks of detectors involved in APOGEIA will be instead filmed, similarly to what google cameras can do. Together with the virtual visits of the location, explanation of the science performed in the sites will be provided in a widely understandable way. Reference to exciting and useful to society results will be made. When possible, also data will be linked through access to AGOSC. The task will require 9 months of a postdoc experienced researcher in software and the deliverable will be the Virtual Tour web linked to T4.1 web site.

Budget Task 8.1: 3 FTE Years: 3x84 k€ = 252 k€ + extra investment 48 k€ = 300 k€

Task 8.2 ASTEK: Connecting scientific, traditional and non/human modes of planetary and ecological sensing (Ally Bisshop, STS, XXX)

STS will develop a conceptual framework that brings Artistic, Scientific and Traditional Ecological Knowledges (TEK) together to contribute to the collective understanding of APOGEIA research and data , including: developing a publicly available mobile app allowing users to explore AGOGEIA's real-time sensing data in connection with TEK and other data; designing an associated global education and community engagement program; developing a conceptual framework for a final artistic output (exhibition/publication) in year three. This will require 36 months of a research fellow with experience in research at the intersection of art, science, sensing methodologies and TEK to support the process of

artist Tomás Saraceno, and assist in coordinating an interdisciplinary group (ASTEK) with expertise across art, science, and Indigenous knowledge practises in planetary sensing. Tasks include:

a. **STS/Ally Bisshop:** Organize an interdisciplinary group, **ASTEK (**Art, Science and Traditional Ecological Knowledge (TEK)**)**, with 3 face to face meetings and 9 virtual meetings of artists, scientists and invited TEK scholars on the synergy themes of APOGEIA, in view of sharing and discussing research correspondences between scientific, animal and TEK sensing data, overseeing the design of the mobile app and community engagement program, and organizing a **final exhibition/publication** on the themes in 2026 The deliverable of this action will be the concept and design of the final exhibition/publication **(D8.4),** which includes other artists , and a dialogue with external researchers (philosophy, sociology, ethology, anthropology) whose research connects to the themes of APOGEIA, particularly with regard to modes of planetary sensing. The funds for the production, transport and insurance of new and existing artworks, and the setup and installation of the exhibition will be sought from private and public funders.

b. **STS/Ally Bisshop:** Conceptualisation and design of artistic **ASTEK Sensing .App (D8.5)** that links APOGEIA's real-time sensing data (astroparticle lab and multi-messenger alerts; environmental and geophysical alerts – including seismicity, clouds, electromagnetic events, cosmics rays, pollution); biological alerts from marine mammals and wave events in the Tyrrhenian Sea) to TEK frameworks for translating ecological phenomena. An aesthetically engaging and user-friendly app will encourage users to build their own practices of ecological and planetary sensing via empirical observations of ecological phenomena in their environment, and 'finding correlations' between empirical, APOGEIA and TEK sensing data. STS will engage front-end and back-end developers to build the app; coding of real-time APOGEIA data streams will be carried out by personnel of ICT departments of the institutions involved in the project. (clarify if this is still appropriate) The app will be tested in year two of the project (beta version release), and delivered in year three (final version) In parallel, a community engagement and education framework for public rollout of the ASTEK App will be designed and developed, which invites engagement with the work of APOGEIA and explores the correspondences between scientific, TEK and nonhuman sensing data.

c. **STS: Document** (via text, video, photo, and audio material) **(D8.6)** the research and thinking process in the development of the app, community program and exhibition/ publication at the intersection of astro and geosciences and traditional approaches to planetary sensing, articulating how fundamental science becomes intrinsic to an artwork; how sharing of tools and practises between traditional and fundamental science can enrich both; and how artistic processes can contribute to thinking in scientific process. It will include aesthetic and discursive documentation of the collaborative thinking and knowledge sharing processes across the different APOGEIA research sites, and between APOGEIA and invited TEK researchers – via video/photo/sound documentation of site visits, ASTEK and other relevant meetings. This research process is also a site for broader philosophical musings about interconnections between art, science and traditional knowledge in the field of 'sensing', and the possibilities for rendering tangible, sensible, and affective data and insights that fundamental science can generate in synergy with the arts and Indigenous knowledge. STS will also explore the possibility of translating this process into a publication, inviting essays on topics across sensing practices in astrophysics and geophysics, and their intersections with the humanities and TEK scholarship. This research and documentation process will inform the **final exhibition**.

d. Other artists will be engaged for exhibitions: Donald Fortescue, and Tim Otto Roth that are developing several artistic projects in connection with the IceCube and KM3NeT detectors and their natural environment, Carol Müller in relation to volcanoes and others.

Budget Task 8.2: 3 FTE Years: 3x84 k€ = 252 k€ + extra investment: 48 k€ =300 k€

Total budget WP8: 600 k€

Deliverables (brief description and month of delivery)

D8.1 Project web site (M12) A web platform, devoted to outreach, communication and dissemination of the astro-geo convergence will be designed and published within 12 months from the beginning of the project.

D8.2 Virtual visits of the APOGEIA infrastructures (M24).Virtual tours of the various scientific infrastructures of APOGEIA will be developed based on free available software and included in the general web platform of the project.

D8.3 Documentation of the art and science process (M18). Documentation (via text, video, photo, and audio material) of the research and thinking process in the development of an artwork at the intersection of art, astro-, geo- and biosciences and Indigenous knowledge, under the theme of 'planetary sensing'

D8.4 App for planetary sensing (M24) Creative ASTEK Sensing App linking astroparticle alerts distributed by the gravitational wave observatories and other astroparticle physics laboratories, well as their "multi-messenger" follow-up, environmental and geophysical alerts (earthquakes/seismicity, clouds, electromagnetic effects, cosmic rays, pollution), and biological alerts (dolphins, whales, wave events in the Tyrrhenian Sea) with TEK frameworks for planetary sensing, encouraging users to engage with the work of APOGEIA and build their own planetary sensing practice. A community education program will accompany rollout of the app.

D8.5 Concept and design for an exhibition and possible accompanying publication on artistic, scientific and traditional practises of planetary sensing (M36) The process of collaborative thinking and inspiration across the different APOGEIA research will inform an exhibition, for which other artists will be engaged, including Donald Fortescue and Tim Otto Roth.

D8.6, D8.8, D8.9 Annual reports (M12, M24, M36). Three annual reports will report the variety of outreach activities or preparation actions (as the annual art and science meetings) carried out every year within the WP program. These reports (video/text/images/sound) will be published online within the APOGEIA web platform.

Milestones:

M3.1 APOGEIA website (M6)
M3.2 Virtual meeting on the state of the art of APOGEIA web platform (M12)
M3.3 Exhibition Concept (M33)

Critical risks for implementation

A relevant part of the planned outreach actions could be implemented even with the present restrictions due to the COVID-19 crisis – with a view to the easing of these restrictions in the next few years. If needed, any activities requiring an interaction in presence with students or the general public will be re-modulated with the participation of a smaller audience or even as online interactive events. The ASTEK App accommodates any face-to-face restrictions.

Expected impacts

One of the main goals of APOGEIA is to cluster the Astroparticle and Geoscience communities towards a pan-European, coordinated and structured approach to research and technological development. The expected impact includes the following main elements:

- The key originality and asset of APOGEIA is the integration of the activities of two large scientific communities, Astroparticle Physics and Geoscience, mature result of a long process of convergence around common scientific themes, instrumental technology development and data analysis tools. As is usual in interdisciplinary endeavours the main impact will be the enrichment of both scientific domains with new objects of study and will increase the thematic reach.
- From the scientific point of view, the APOGEIA activities will have a clear impact on the study of the multidisciplinary Earth and Universe by *(a)* improving the enabling technologies; *(b)* improving the data analysis techniques and optimizing the exploitation of present observational facilities and data sets in Europe and beyond.
- Collected data from various infrastructures and tests performed during APOGEIA will be gathered in a data platform within a standardized format enabling simplified joint analyses. By creating an exchange data platform and enabling access to data and to the infrastructures providing them, it will be possible also for the large public to grasp the impact of the merging of the Astroparticle and Geoscience communities.
- The enhanced collaboration in APOGEIA will allow a strong link among proposing infrastructures and also with new ones with the goals of integrating them and enlarging the offered services. The activities will also continue to provide a direct link with observatories in other scientific domains, some of them represented by the already existing European Integrated Activities, *e.g.* ESCAPE, AHEAD2020.
- APOGEIA activities will include a large number of scientists and are designed to facilitate cross- disciplinary fertilizations and a wider sharing of knowledge and technologies between academia and industry. The current list of industrial involvement will be increased by a long list of key SME's already collaborating with the scientific and technical groups of APOGEIA.
- Innovation will be strengthened through reinforced and enlarged partnership of research organisations with industry. The impact of these activities will significantly bring substantial benefits for society, namely in the areas of environmental studies, early warnings and societal risks.
- Another key asset of APOGEIA is a rich and original program of communication and engagement, with particular sensitivity to multisensory apprehension of reality increasing inclusion (e.g. the visually impaired) and extending to Art and Science actions, which not only will enhance communication effectiveness, but also have the potential to trigger new opportunities and become a source of new ideas. One expected impact is the increase of inclusion practices in society but also support and diffusion of critical thinking.
- Particular care will be devoted in APOGEIA to the growth of a new generation of researchers. This will be achieved by acting at various levels
- The key deliverables of APOGEIA have the ambition to largely impact the future Research Programme of European environment of both Astroparticle and Geoscience large infrastructures as well as the global scale observation networks.
- APOGEIA will contribute to evidence-based policy making, towards a sustainable planet, an general objective that the coronavirus crisis dramatically reminded to European Societies. APOGEIA is strongly committed to make use of the synergy between Geosciences and Astroparticle physics to the benefit of monitoring the well-being of the Geosphere.

Expected Impact of the Virtual Access.

Both gravitational wave community through the Gravitational Wave Open Science Centre (GWOSC) and the high-energy neutrino community through the neutrino SNEWS deliver

public alerts on their most interesting events, just as radio, X-ray and optical astronomers do. Following the GWOSC experience, integrating activities in the EC cloud through ESCAPE, but also exploring experiences of other starting communities in Geosciences such as the the European Plate Observation System (EPOS) and the European Marine Observation and Data Network (EMODnet), the open access science platform developed in APOGEIA will allow access to astrophysical and geoscience data, respectively.

Expected Impact of Networking Activities.

The Networking Activities will focus on improving connections between the participants and the Astroparticle/Geoscience communities at large. The APOGEIA workshops will continue to provide the opportunity for the interaction between Early Career Researchers, more experienced scientists and industry and help to strengthen a Europe-wide approach to research and collaboration. Public outreach, engagement is a key element of APOGEIA. This will happen at several levels:

- Starting June 2022, the United Nations will proclame the year 2022 (till June 2023) International Year foe Basic Sciences contributions to Sustainable Goals (IYBSSD). EGO and INFN are members of the steering committee of the organising team, and the golas of this UN initiative fit perfectly well with the golas of APOGEIA, so many manifestations will be organised under th IYBSSD logo.
- at the educational level by targeting high school students in order to enhance their interest in astronomy, but also citizen's science activities in synergy with other EU-funded programs, coordinated by EGO, e.g. the program REINFORCE that promotes citizen's science around large infrastructures (EGO, KM3net, CERN, muography) with special attention to multimodality of access and more generally inclusion;
- Communication with public through web communication, apps and virtual visits but also organization of small exhibitions, open days and production of visual and multimedia tools linking Science and Art.
- at the Art and Science level, by the formation of a working group of artist and scientists in view of the preparation of an exhibition on art and science, around the themes of APOGEIA (see relevan WP)

Expected Impact from Joint Research Activities.

The new community in formation around APOGEIA activities will have a strong impact by addressing several aspects of modern astro-geo-convergence, which can be essentially grouped in a few broad topics:

1. Deployment of large sensor networks in extreme environments (sea, underground, space), use long series of precise observations acquired over a large range of time scales;
2. Large data manipulation and worldwide networking, including distribution of alerts. While APOGEIA does not address the medical or biological crisis introduced by the Corona virus, it is strongly committed to contribute to establish virtual access and work of the scientific community in the direction of the digital revolution we are witnessing. Concretely, this will happen through creating an exchange data platform, and enabling access to the data of the involved infrastructures, and connecting it to the European Open Science Cloud (EOSC).
3. Enhancement of innovation (e.g. through new quantum sensors, new early warning systems or new "smart" technologies - Industry 4.0).

4. Enhancement of environmental understanding and means of addressing the societal issues, such as impact of climate change, natural hazards.

2.2 Measures to maximise impact

a) Dissemination and exploitation of results

The dissemination of the APOGEIA results is fully implemented along the project life by a coordination of the development and outreach activities, with an operative scheme involving the participation to large meetings which involve researchers of both communities at large, other communities and industry, the general public, the students and their teachers, and the funding agencies. The results of activities (*e.g.* corresponding to milestones of the project) will be published as soon as they will become available on Open-Access specialised journals and the most important achievements will be advertised by press releases. Oral presentations, as well as publications or press releases centered on APOGEIA results will specify that the project has received EU research funding and will be required to specify support by APOGEIA and the European Commission. This requirement will be extended to teams and individuals selected for TA support.

The dissemination of APOGEIA results will also be achieved by the participating scientists and engineers, who will present the project and its results at meetings on behalf of the APOGEIA participants. This will take fully into account the need to describe precisely, and with adequate detail, the innovation potential of the technology transfer studies performed inresearch activities, to a range of professionals including researchers from physical and social sciences, and eventually, complemented with information useful to financial and investment officers. In this respect the dissemination of the innovation potential of the technologies developed under APOGEIA will take advantage of the network of companies and industries that are connected with APOGEIA participating institutes. We plan to build up a directory of potentially interested companies and to disseminate our results by newsletters and dedicated meetings.

The publication of results achieved by the teams participating in APOGEIA will be advertised to the full Consortium well in advance and, when requested, followed out internally before submission with modalities that will be specified in the Consortium Agreement. The scientific and technical papers, preprints and a selected amount of the data produced will be made available, free of charge and accessible on the internet using public repositories. For articles, we plan to use a renowned, world-class science subject repository (e.g. arXiv) allowing a reader to immediately read, download, and print a pre-publication. Moreover, a *gold* open access approach will be followed: e.g., publications of Science proceedings, immediately available online; or special issues of journals freely accessible on journal web-pages (e.g., EGU journals). In addition, an up-to-date repository of all APOGEIA related articles will be maintained and accessible on the main project web-page.

Results of technology innovation studies will be properly advertised in other communities of researchers working e.g. in fundamental research (astrophysics, particle and nuclear physics), environmental and geological sciences as well as in the humanities and cultural domain. Moreover, the activities of research activities will stimulate the production of new standards for data analysis, (cross)calibration, prompt dissemination of alerts and offer tools for advanced simulation. They will at the same time make available the knowledge/expertise of the specialists to a wider range of users.

The APOGEIA project will generate different types of data including: *(a)* interdisciplinary output of the test and calibration activities performed by the research activities; *(b)* archives with real or simulated data, and tools to analyse it: data of multi-platform observations of multidisciplinary events, simulated observations, models and analysis procedures etc. *(c)* activity reports; *(d)* videos and other multimedia objects. The maintenance of the above data

will be guaranteed throughout the project life. The data described in *(b)* will be made available for access on the public internet.

The management of Intellectual Property Rights (IPRs) is an important issue, which will be addressed in detail in the Consortium Agreement to be signed between the parties and will be managed in accordance with international rules, in particular to determine the level of access that can be given to disseminate the results of industrial relevance. The Consortium Agreement (CA) will be based on the DESCA2020 model and will over the decision mechanism on ownership of IP, in particular to protect the foreground of the project that may have valuable industrial or commercial applications.

The Project Office, in collaboration with the APOGEIA Executive Committee, will develop and maintain an IPR register. The register will serve as a database to decide on ownership of IP, and on patents. In particular, the principal is that IPR remain within the "releasing beneficiary". In making use of APOGEIA, the default assumption will be that data they generate will be Open Access. Given the deliberate orientation to involve industrial partners, however, there may be cases where commercial considerations make this impossible and APOGEIA will draw up a special agreement to limit the availability of these data.

Special attention is made on joint ownership of hardware prototypes developed in research activities. The matters related to joint ownership, final destination and availability for use of these prototypes by the partners will be described in detail in the CA. In particular, for joint ownership:

1) each of the joint owners shall be entitled to use their jointly owned results for non-commercial research activities on a royalty-free basis, and without requiring the prior consent of the other joint owner(s); any exception to this will be specified and described in the CA;
2) each of the joint owners shall be entitled to otherwise exploit the jointly owned results and to grant non-exclusive licenses to third parties (without any right to sub-license), upon advance notice and fair and reasonable compensation.

Furthermore each participant may transfer ownership of its own results in accordance with rules stated in the Grant Agreement. The APOGEIA Executive Committee will regularly address the IPR issue when needed during its teleconferences and in-person meetings. The Consortium Board will be regularly kept informed of any IP issue that may require a decision.

b) Communication activities

The APOGEIA project will engage the Geoscience and Astroparticle Physics joint community in a more structured approach; by setting up a Science Advisory Committee composed of researchers external to the APOGEIA community. We anticipate a membership that will comprise representatives of similar initiatives in the field of astrophysics, geophysics or more generally physics with particular attention to complementary programs such as GEO.8, Academia Europaea, APPEC and the Gravitational Wave International Committee (GWIC), aiming at establishing a strategic planning mechanism for many domains of European science.

General public, students and educators will be engaged in APOGEIA activities with the help of the dedicated outreach package, which includes several means to address that audience (press-releases, videos, a dedicated web-portal with several on-line educational resources, and dedicated APOGEIA material in existing Visitor Centers). Communication about the innovation potential of the technologies developed under APOGEIA will target industrial parties aiming at engaging potential partners for future spin-off. An initial list will include the network companies and industries that are connected with APOGEIA participating institutes, and will be increased and updated during the project.

All members of APOGEIA will be involved in advertising and communicating the project aims and results will report to the Coordinator within their yearly or mid-term reports. If the

Coordinator finds that a particular aspect of the communication needs to be improved, they will inform the beneficiary, jointly study a solution of the problem and implement appropriate correction measures.