

**Romanian participation with papers  
within Session 36 - *Antarctic education, outreach and training in SCAR*  
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**Communicating Antarctic scientific and environmental information to the scientific community and decision factors**

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Romania developed the last ten years *educational and outreach programs on Antarctic issues*. Various activities were organized and achieved (2005-2010) by the Romanian Polar Research Institute and Romanian Antarctic Foundation, with 15 research institutes and universities, in the project "Polar Research and Protection – a Priority" to raise awareness of scientists, decision makers and general public of the impact of anthropic activities and climate changes on polar regions.

These activities produced papers, abstract volumes, three International Polar Research symposia (2006-2008), conferences at: Romanian Academy (RA), Romanian Research and Education Ministry, universities in Romania/abroad, research institutes; radio/TV broadcasts on IPY, Polar Week; You Tube videos, and two books by Dr. Teodor Negoita (2005, 2007) describing Romania cooperation with Australia, China and Russian Federation in Antarctica (all reported to IPY and SCAR). Institute of Biology of RA Bucharest organized a postgraduate course (2008) and an international symposium (2009) on extremophiles.

*Romanian National Commission for Antarctic Research* (NCAR) of RA, the current Romanian Antarctic Operator, developed and performed (2012-2016) an intense program meant to inform the scientific community and decision factors on the Antarctic issues/policies, considering the Antarctic research and protection while observing the Antarctic Treaty System regulations. Research fields included genomic, physical and biological/medical sciences.

Communications addressed to professors and students in *Romanian universities* in Bucharest, Iasi, Cluj, Timisoara, Galati, Constanta, Arad; Ecological University Bucharest (EUB). Scientific events (conferences, workshops) *within RA* (NCAR and Romanian Committee of Science and Technique History and Philosophy) referred to Antarctic science development and necessary policies/programs.

Romanian (Bucharest) *research institutes* (of RA: Institute of Virology; Astronomical Institute; Institute of Speleology and Institute of Biology; and R&D Institute of Biological Sciences; National Administration of Meteorology) benefitted by this information. *Romanian Ministries* (of National Education and Scientific Research; of Environment, Water and Forests; of External Affairs) and RA, as decision factors, conducted inter-institutional discussions on Antarctic issues. All a.m.

institutions were involved in organizing/contributing to those events. *Scientific/professional associations* (CRIOSPHERA, Romanian Plasmapheresis Association) were informed on Antarctic issues.

*Education and outreach activities resulted in progress in Romanian Antarctic research and training.* New Master and PhD programs (temperate/polar regions comparison; life in extreme environments) are initiated in universities (EUB, Galati and Cluj Universities), possibly in cooperation. *Polar microorganism research* led to patent applications (Galati University).

A *Department of Antarctic and Arctic Research* within R&D Institute of Biological Sciences was established following discussions of AR-NCAR and the a.m. ministries, which organized two *Antarctic expeditions* (2015, 2016) in cooperation with Korea. Domestic and international scientific cooperation extended. The number of papers (in journals and submitted to SCAR (OSC) 2008, 2010, 2013; APECS), and books (Fendrihan, S., 2011; Manea, P., 2015) increased.

*Cooperation of universities with ECO-Clubs* (ECOING of EUB, "T. Negoita" ECO-Club Bacău), when teachers, pupils and students are voluntaries in protected areas (Danube Delta, Bistrița – Bacău County) supports environmental protection. Increased interest for polar issues attracted sponsors for Antarctic research, supporting university programs or Antarctic expeditions.

[http://www.academiaromana.ro/comisiiAR/Comisia-CNCA/comisii\\_CNCA\\_even.htm](http://www.academiaromana.ro/comisiiAR/Comisia-CNCA/comisii_CNCA_even.htm)

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[Topârceanu F., Cotta M., *Cercetări românești în Antarctica, tradiție și actualitate - o abordare interdisciplinară (21.04.2016)*, în Programa Cursului de Inițiere în Istoria și Filozofia □tiinței și Tehnicii: 11-22.04.2016]



## **Valorization of national and international polar education and outreach programs to disseminate Antarctic information**

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Romanian polar research institutions (1994-2010), i.e. former *Romanian Polar Research Institute* and *Romanian Antarctic Foundation*, since 2005 developed/performed, involving universities/research institutes, schools, the media, a program of polar education & outreach within the Project “*Polar Research and Protection – a Priority*”, enabling scientists, students and pupils, decision factors, media and general public to be informed on Antarctic values/challenges and the necessity of Antarctic research and protection.

The program included: conferences [Romanian Academy (RA), Ministries], school-classes, pupil contests/drawings, photographic exhibitions, public library lectures, educational journals (Terra Magazine), information by the media: interviews, press-releases, Radio/TV broadcasts, YouTube videos, important Romanian journals; two books (expedition diaries) by Dr. Teodor Negoita on Romanian cooperation with Australia, China, Russian Federation in Antarctica: “With Chinese People in Antarctica” (2005); “Romanian Embassy in Antarctica. Law-Racovita Station” (2007); a photo-album/CD in English, Romanian, Danish: “Ways to Greenland” by Andrei Iordache (2008 Romanian expedition).

*National Commission for Antarctic Research* (NCAR) of Romanian Academy, since 2012 the current National Antarctic Operator, continued this program to raise awareness of scientists, educators, decision makers, general public of anthropic activities, climate change impact on polar regions, and efforts to preserve biodiversity/polar ecosystems.

Programs „*Discover life in Antarctica with polar researchers*” and „*Know and protect Antarctica!*” were implemented, including lectures, school-classes, books/CDs (Pompiliu Manea „Emil Racoviță and his successors”, 2015), interviews, Radio/TV broadcasts; reports on web-sites (RA; „Memorandum”; Romanian Embassy in Australia on Romanian-Australian cooperation; Romanian Embassy in Brussels on ATCM 2013, „Belgica” Expedition, „The Explorer” documentary film on Emil Racoviță).

*Romanian educational system* includes environmental protection classes at all pre-university levels. University / school partnerships with ecological agencies / clubs are meant to develop responsibility for areas unique in the World, Antarctica included.

*Voluntary participation of students, teachers, pupils in ecological activities* encourages participants to use knowledge to protect nature, e.g. ECOIND of Ecological University Bucharest; „T. Gh. Negoita” ECO-Club and „D.Mangeron” Technical College Bacău; Circle of Studies „The Danube Delta and Law-Racoviță Antarctic Station” at C.A.Rosetti School with 7 satellite-schools in Danube Delta Natural (Biosphere) Reserve (UNESCO). Student-pupil-teacher-ecologist cooperation

supports environmental protection in neighbouring protected areas (Danube Delta; Bistrița – Bacău County); comparison with Antarctic protected areas is inspiring.

National educational mean „*Another kind of School*” involving pupil visits to institutios (Astronomical Institute, 2014-2015) or in-school optional activities [South Pole Exploration Centenary Symposium at „E.Nicolau” Technical School (six Focșani County institutions)] proved efficient.

“Grigore Antipa” *National Museum of Natural History*, Bucharest organizes periodical or holiday non-conventional classes of biology/ecology and funny lessons to ecologically make educational or arts products.

NCAR actively valorized the *international polar education & outreach programs: Polar Week* (2008-2010, 2014), *Poles Day*, *Antarctica Day* (2010-2016).

*Romania is the only state celebrating its National Day on Antarctica Day* (December 1<sup>th</sup>) [e.g. Focșani Arts Highschool celebrated 25 years since Madrid Protocol: „Visual arts as a tool revealing the importance of Antarctic environment protection”, 2015].

*Young researchers* participated in CRIOSPHERA 2013-2015, APECS (2010; 2013-2015).

These programs enhanced public interest on Antarctica, the number of participating institutions / people, inter-institutional cooperation; diversified educational methods/means; contributed to the capacity-building efforts.

<http://memorandum.ro/statia-law-racovita-negoita-din-antarctica-un-vis-implinit-in-lumea-aisbergurilor/>  
<http://www.antipa.ro/ro/categories/58/page> [Aventură în Antarctica (2015); Diorama Mările reci arctice]  
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