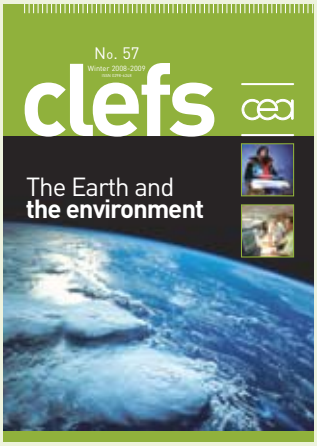

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Main cover picture
Setting as it does a major challenge to science, and society, conservation of the environment entails understanding the climate changes that occurred in past times, to predict the future evolution of climate. It further entails keeping the Earth under close watch, by searching for pollutants in soils, air, and water, and constantly monitoring the planet's state, to keep track of its unceasing activity.
StockTrek

Inset
top: **Polar ices keep a record of valuable information, regarding climate evolution. Under the aegis of the NEEM international program, a deep core drilling is being carried out in northwestern Greenland, to obtain a continuous climate record, covering the whole of the last interglacial period.**
C. Morel/Our Polar Heritage-CEA

bottom: **Inside the geophysical signals analysis room. CEA has the remit of detecting any seismic event, locating it swiftly, computing its magnitude, and issuing a warning, if required, communicated to government agencies.**
C. Dupont/CEA

Pictogram on inside pages
Our planet.
StockTrek

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Editorial

"For nuclear technology, by nuclear technology"

This mantra is regularly recited, to assert – particularly with regard to life sciences – the legitimate character of the presence, within CEA, of activities that might, at first blush, seem extraneous to the organization's purpose. It is singularly apt, to account for CEA's involvement in Earth, and environmental sciences.

"For nuclear technology:" it was for the purposes of meeting the country's needs, to ensure its installations were operated with all due safety, and to carry out its own tests, while monitoring those conducted by others, under the aegis of international treaties, that France developed a range of expertise, whether with respect to seismology, or searching for radionuclides in the atmosphere, and in soils.

"By nuclear technology:" it is through the use of nuclear – nucleonic, isotopic – techniques that decisive advances have been achieved in many domains, whether it be reconstructing past climates, modeling atmospheric circulation, or monitoring sediment deposition in rivers, or along coasts, to take but a few examples.

The first chapter in the present issue is, of course, devoted to climate, "the" issue at the start of this century. The Nobel Peace Prize, awarded, in 2007, to the Intergovernmental Panel on Climate Change (IPCC), within which experts from CEA are playing a leading part, has brought further credibility to the work produced by that group, in order to make manifest, ultimately, the impact human activities are having on the warming evidenced by the climate system.

The second chapter is devoted to the search for pollutants, in all compartments in the terrestrial environment, whether it be the ground, air, or water. Three environments that are again covered in the final chapter, with the tremors and quakes of the first one, the motions of the second one, and the surges of the third.

All of which topics mean that the publication of this issue is quite naturally attuned to the context of the International Year of Planet Earth: here are, indeed, "Earth sciences for society," and humankind.

> Bernard Bouquin

CEA ranks as one of the foremost technological research organizations in Europe, with respect to energy, defense & security, and health & information technologies. At the same time, it has the remit of ensuring the continuing viability of the French nuclear deterrent, one of its historic briefs, as Atomic Energy Commission. CEA stands as source of expertise, and recommendations, for government agencies.

The organization's assets are a meeting of cultures, bringing together engineers and research scientists, conducive to synergies between first-rate fundamental research, and technological innovation closely coupled to the needs of society, and the players in the economic sphere; outstanding facilities; and actual involvement in the industrial and economic fabric. With more than 440 priority patents registered in a single year, it ranks as the leading applicant for patents, among French public-sector research organizations.

With sites in France accommodating nine research centers distributed across the country, CEA, with a workforce of 15,000 and an annual budget of €3.4 billion, benefits from its strong presence at regional level, bolstered, over the past few years, by its strong involvement in 15 competitiveness clusters, and sound partnerships with other research organizations, local authorities and universities: 54 joint research units (UMRs) bring together CEA and its research partners, and 28 corresponding research laboratories (LRCs) are associated with CEA.

Widely recognized for its expertise in its areas of competence, CEA, operating as a public-sector establishment of industrial and commercial character under French law (EPIC), is fully involved in the French research and innovation system; it is a participant in (or is steering) more than 500 projects funded by the French National Agency for Research (ANR), is taking part in a number of programs supported by the French industrial innovation funding agency, AII–OSEO, and several CEA laboratories have been awarded the Carnot label. CEA is also a major player in the European Research Area (ERA), being involved, under the aegis of FP6 and FP7, in more than 200 projects, of which it steers more than 40, while it is an active participant in the European technological platforms, and joint technology initiatives (JTIs), along with an ever growing presence on the international scene, by way, in particular, of partnerships set up with major research organizations.

A major player in the field of research, development and innovation, the organization, since 1985, when a dedicated structure was set up to nurture spinoffs, has presided over the setting up of about a hundred new companies in the high technology sector.