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Short self- introduction
Director of Researches at the National Scientific Research Centre (CNRS, France). I am presently assigned at 'Laboratoire Magmas et Volcans' and at the 'Observatoire de Physique du Globe de Clermont-Fd' (CNRS-UMR6524, UMS 833). I manage a team specialized in electromagnetic (EM) studies related to volcanic eruptions and earthquakes. Since 2007, I also chair the International Inter-Association 'Electromagnetic Studies of earthquakes and Volcanoes' (EMSEV, http://www.emsev-iugg.org/emsev/) which was founded by IUGG in 2001 (http://www.iugg.org/). I contribute to review articles as Associate Editor of Annals of Geophysics. Presently, I am working on scientific projects related to precursory EM signals related to volcanic activities (Japan, France, Philippines, Russia, Italy, USA ...) and on EM signals related to active faulting.

Research Report
The mitigation of natural hazards, particularly volcanic eruptions and earthquakes is a major concern in the preservation of life and property.
In Japan, It is a critical issue since the country of 337,000 km2, the physical geography and the population of 127 million people force to invest hazardous areas as volcanoes, active faults, landslides areas, and seashores subjected to tsunamis. In addition to construct buildings able to resist to natural hazards, it is required to continue to develop advanced researches on the genesis of the hazards, on monitoring techniques and on risks assessment.
In France, seismic activity is much lower than in Japan, although earthquakes of M6 might occur along the Mediterranean Sea shoreline and in the Pyrenees massif. On the opposite, volcanoes on France territory have provoked many victims and economical disruptions in the past. The eruption of Mount Pelée in 1902 has killed about 30,000 people, while tens of thousands of people were evacuated during many months during the last eruption of La Soufrière of Guadeloupe (1975-1976).
Our Japanese-French cooperation started in 1992, and teams from different Institutes mainly focused their efforts in the application to Electromagnetic methods applied to volcanic unrests. Progressively, an international EM team was formed and was able to intervene on different volcanoes: Miyake-jima and Hachijo-jima in Japan, Long Valley caldera in USA, and Taal in Philippines. We now form an efficient international group able to (1) work together sharing equipments and data, (2) to act as task force in new investigations and implement new real-time multi-parametric networks (EM, deformation, seismic, thermal fluxes, etc.) useful for monitoring volcanic unrests, (3) to jointly process and interpret data, (4) to promote EM studies to young students and communities, and (5) to lead international cooperation's.
In Japan, we have deeply worked on Miyake-jima volcano which erupted on July 8, 2000.

After 1994, ERI (Tokyo University, Y. Sasai) and ourselves (Laboratoire de Géophysique d'Orléans) started structural studies and have set up self-recording electric and magnetic networks. Based on multi-parameters stations, we were able to record well before the eruption EM signals that reflected the renewal of activity (Nishida et al., 1996, Sasai et al. 1996, 1997, 2001, 2002, Zlotnicki and Nishida, 2003, Zlotnicki et al., 2003, 2009).

- Four years before the eruption of July 2000, the magnetic field showed that a thermal source took place in the southern edge of the volcano,
- Six months before the eruption, electrical potential measurements indicated that the hydrothermal system nearby the ground surface was in disequilibrium,
- Three months before the eruption, the electric field became disturbed, and continuous electrical resistivity soundings pointed out a thermal flux shifting towards the ground surface,
- 10 days before the small eruption of underwater June 26, 2000, a drastic decrease of electrical resistivity showed the eminence of an eruption.
- And finally, large magnetic changes accompanied the migration of stress source prior to the July 8, 2000 caldera formation.

The population of the Island was evacuated during the eruption, and she was only allowed to come back five years later.

During the following years, our teams have continued to make self-potential surveys and magnetotelluric soundings. These observations contribute to better understand the 2000 cycle of activity over a period of 22 years (1992-2013). In addition, new techniques in data processing have been elaborated and they allow to analyse in detail the EM signals which have appeared before and during the eruption. The new investigations also highlight how an hydrothermal system can disappear and be recharged after a cataclysmal eruption.