

# The French Air and Space Academy Awards the "Grand Prix" to the SAFIR System Team

The French Air and Space Academy has awarded its year 2000 "Grand Prix" to the SAFIR system development teams of Vaisala and ONERA (the French National Aerospace Research Agency). This award acknowledges exceptional technological achievements benefiting the aviation and space community.

## SAFIR Thunderstorm Forecasting System

The SAFIR System applies the latest aerospace technology to the early detection and forecasting of lightning and thunderstorm hazards for a wide range of users. Due to its state-of-the-art technology and range of operational installations, the SAFIR system has become the reference system for Total Lightning Detection.

The SAFIR system has resulted from advanced R&D programs conducted by the French National Aerospace Research Agency (ONERA) on lightning prevention and storm forecasts for aeronautics, defense and space applications.

Specifically designed for total lightning detection, SAFIR is a breakthrough in lightning technology. SAFIR provides complete information on thunderstorms, ranging from accurate localization and characterization of lightning strikes to early detection and forecasting of in-flight and on-the-ground thunderstorms hazards.

*The SAFIR system provides complete information on thunderstorms.*



Philippe Richard  
General Manager  
Vaisala Thunderstorm SBU  
Vaisala Dimensions  
Meyreuil, France

**F**or a decade, the SAFIR system (Surveillance et Alerte Foudre par Interférométrie Radioélectrique) has served the French aerospace centers and numerous international users in the aviation and meteorological fields.

The unique SAFIR system was the first to be designed for wide-coverage "Total Lightning" detection to provide early detection and nowcasting of thunderstorm hazards on a national scale. Due to its benefits in hazards nowcasting for aviation, aerospace, meteorology, hydrology and electricity, SAFIR has been chosen by the French aerospace centers and by numerous meteorological services in France and abroad.

### Historical background of SAFIR

SAFIR has gone through several phases, starting from fundamental research conducted at ONERA and ending with operational applications developed by Vaisala Dimensions.

- At the end of the 1970s, ONERA started research on ways of protecting airplanes and space launchers from atmospheric electricity and lightning.
- In 1981–1984, field experiments were carried out in Africa, the United States and France.

- In 1985–1988, ONERA launched the SAFIR development project for the French Department of Defense and the National Space Agency (CNES). The first systems were put into operation for the European Space Center (CSG) in Kourou (French Guiana), and the DOD Flight Test Center (CEL), in southwestern France.
- In 1989, the Dimensions company was founded as a spin-off of ONERA for the industrialization and commercialization of the SAFIR System.
- In 1990–2000, Dimensions developed SAFIR operational applications for meteorology, aviation, hydrology and electricity. SAFIR was recognized as a unique reference for Total Lightning detection and storm nowcasting through its commercial successes in Europe and Asia.
- ONERA continued research with a 3D SAFIR system in the fields of aviation applications and atmospheric chemistry.
- In 2000, Dimensions joined the Vaisala Group.
- Vaisala Dimensions is now a partner in the ONERA "Orages" project for VHF satellite-borne lightning detection. ■



*SAFIR's Grand Prix Team, from left to right: Patrice Blanchet, Philippe Richard, Pierre Laroche, Anne Bondiou Clergerie, André Soulage, and Jean Yves Lojou.*

### The awarded SAFIR team

#### Vaisala Dimensions /Thunderstorm Group

**Philippe Richard:** General Manager of Vaisala Thunderstorm SBU; founder of Dimensions, head of the SAFIR development group at ONERA from 1980 to 1989.

**André Soulage:** Technical Director of the Vaisala Thunderstorm Group; founder of Dimensions, Technical Manager for SAFIR system development at ONERA from 1984 to 1989.

**Jean Yves Lojou:** R&D Manager at the Vaisala Thunderstorm Group.

#### ONERA (French National Aerospace Research Agency)

**Pierre Laroche:** Head of the Atmospheric Environment Research Unit at ONERA, President of the International Commission on Atmospheric Electricity of IUGG

**Anne Bondiou Clergerie:** Chief Scientist, Atmospheric Environment Research Unit, ONERA

**Patrice Blanchet:** SAFIR Technical Manager, Atmospheric Environment Research Unit, ONERA.