

6.15 EVOLUTION OF THE CONFIGURATION OF THE LIGHTNING PROTECTION SYSTEM OF THE KAPILDUI WEATHER RADAR INSTALLATION

M. MARURI¹²³, J.A. ARANDA¹⁴

¹ Basque Meteorology Agency, Basque Country, Spain

² Meteorology Area, Energy and Environment Division, Tecnalia R&I, Basque Country, Spain

³ University of the Basque Country UPV/EHU, Spain

⁴ Emergencies and Meteorology Directorate, Security Department, Basque Country, Spain

mercedes.maruri@tecnalia.com

The Basque Country has a complex topography and flash flooding events due to the morphology of the basins. This was the main reason to install new weather radar, the second in the region, in 2005. But to find the best place, many factors were taken into account, meteorological, accessibility, blocking effects between others. The final decision was inland in the Kapildui Mountain, although the system was built according to the lightning protection system of the installation project; the site has a high electrical activity.

The present work is a description of the evolution of the lightning protection system until to find the current solution. After more than 10 years, in October 2014 was installed the last design and since then neither lightning strike impact has been detected in the radome. At this moment the Kapildui weather radar is working with its third radome and there are three periods associated to each radome in which a new protection system was probed based on the previous studies of the performance under different meteorological conditions to try to find the final solution. Results based on the experience along the years are presented in this paper.

The methodology connects the electrical activity with the protection system and the performance based on the radome impacts detected after a meteorological event. The main conclusion is that the protection system installed must be 100% efficient, any impact in the radome structure changes the properties of the radome and it is a weakness to future severe weather events, therefore it is important to find the best solution to the site for operational systems.