6.13 THE INSU* AND DMN** NETWORK OF ST RADARS

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Due to their capabilities of measuring wind profiles in the troposphere and stratosphere with a good time and height resolution, ST radars are well adapted to carry out atmospheric research in many fields as well as to fulfill the meteorological forecasting needs. In France, a VHF (Provence - CROCHET, 1985) and a UHF (Proust - BERTIN et al., 1985) ST radar are working for research purposes and two networks are projected (PETITDIDIER et al., 1985).

The INSU Network (3 radars) has been proposed by scientists working in tropospheric and stratospheric physics and will be devoted to research in connection with other instruments (meteorological radar, lidar, rawinsonde, balloon...). The spacing between the radars and their relative locations will depend on the topic under study. In the same way, the time resolution is imposed by the expected time scales of the studied phenomena and the height resolution by their spatial scales and by the estimated thickness of the turbulent layers (10 - 300 m). As these radars will work during simultaneous measurement campaigns, as ALPEX 82 or FRONTS 84, they must be transportable. Table 1 summarizes the main characteristics of such radars.

The DMN network has been proposed in order to equip the French meteorological station network with ST radars. Basically, its specifications are determined by the requirements of the World Weather Watch as it concerns the time and height resolution as well as the range of altitudes. Table 1 gives the main characteristics of such radars. However, measurements of other parameters, available for ST radars as vertical wind and the altitude of the tropopause, or high time resolution data may not be completely excluded as they are interesting for meteorological research and could be used in future weather prediction (GAGE and SCHLATTER, 1984).

TABLE 1

	Research	Meteorology
Minimum altitude	300 m	300 m
Maximum altitude	12 - 15 km	20 km
Height resolution	150 - 300 m	600 m up to 12 - 13 km 1 measure every 50 mb 2 km at 12 km 4 km at 20 km
Wind component	vertical	
		horizontal
	horizontal	
Time resolution	several minutes	1 h
Tropopause altitude	yes	--

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**DMN: Direction de la Meteorologie Nationale

In order to carry out these 2 projects simultaneously, the different institutions involved have coordinated their technical and financial investments for a better efficiency. The first stage is the realization of a prototype fulfilling the specifications of the 2 projects. This radar is under study and should take part in the experiment "Fronts 87".

REFERENCES

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