

3.19 NETWORKS OF UHF WIND PROFILERS WITH S-BAND DOPPLER RADARS

PARKSA KIM¹, BERNARD CAMPISTROM², KWANG-HO KIM³, MIN-SEONG
KIM¹, BYUNG HYUK KWON⁴

¹ Geo Sciences Institute, Korea

² Centre de Recherches Atmospheriques, France

³ Weather Radar Center, Korea

⁴ Pukyong National University, Korea

bhkwon@pknu.ac.kr

The Korean peninsula extends between 33°N and 40°N. It is bordered by the Yellow Sea to the west and the East Sea to the east. The Chinese mainland and the southernmost Siberian form its northern limit. This geographical environment induces a climate described as humid subtropical with well-marked and contrasting seasons. Spring and autumn are mild and temperate periods. During the summer a hot and humid monsoon regime is established. Under the continental influence, winter is generally cold and snowy. The weather events are very often violent, sudden and destructive: typhoons and torrential rains during the hot months, blizzard and winter snow storms blocking human activities in a very mountainous country. In these conditions, the weather forecasting is a perilous exercise of which the improvement need to implement powerful numerical models supported by dense networks of observation and measurement. This study focuses on the networks of wind profilers and weather radars that have been operated over the past ten years. The peninsula is covered by 10 UHF profilers and 11 Doppler weather radars (8 in the S-band and 3 in the C band). The spacing of these instruments is on average 150 km, which is particularly interesting resolution because it allows the restitution of wind field in 3D at atmospheric boundary layer as well as mesoscale, and the direct comparison with the meteorological models. These networks also make possible the experimental restitution of second-order parameters of the divergence and rotation type, which are often tainted by error in digital applications. The evaluation of these networks is the objective of this study.
