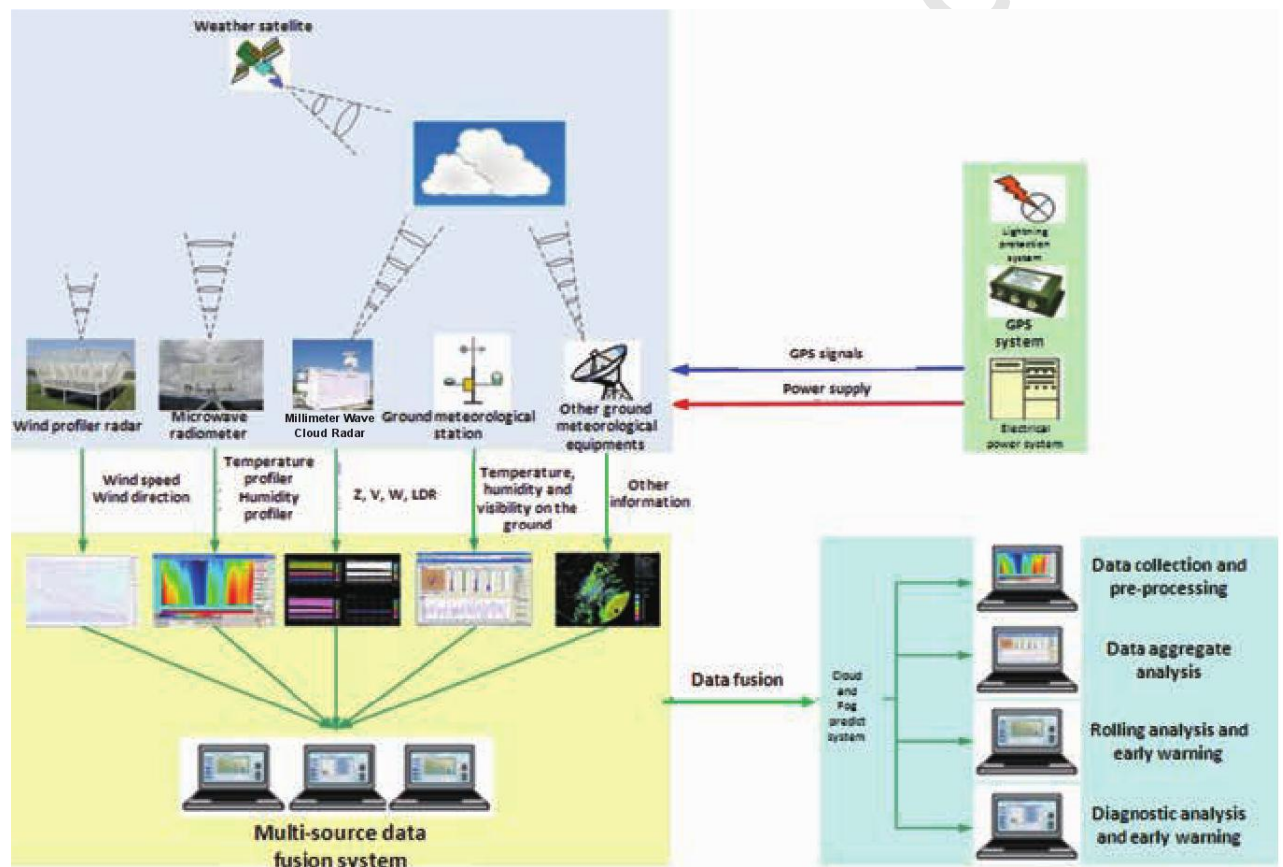


Cloud & Fog Detection and Prediction System

Introduction

Cloud&Fog Detection and Prediction system is designed to meet the need the detect and predict the weather conditions with poor visibility (mainly caused by low-altitude cloud or fog) which can influence safety and efficiency of air and sea traffic. The whole system is established by proper combination of millimeter wave cloud radar, boundary layer wind profiler radar, microwave radiometer, etc.

Cloud&Fog Detection and Prediction system is consist of radar detecting system, multi-source data fusion system, cloud &fog predict system and supporting system. To detect and predict the developing and decaying processes of fog, the system has adopted some key techniques such as fog detecting by millimeter wave cloud radar, multi-source data fusion and cloud&fog prediction. The system can provide meteorological support for air ports and sea ports.



Advantage

Obtain space distribution information of low-altitude cloud or fog, provide visibility data with high temporal-spatial resolution.

Real-time monitoring and early warning for poor visibility weather conditions by aggregate analysis of air temperature,

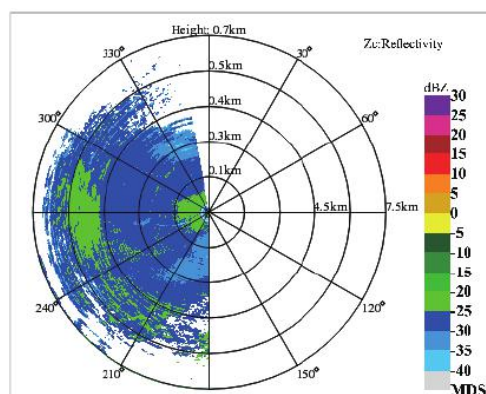
air humidity, wind speed and radar echo of cloud and fog.

Intelligent system design, all weather unattended operation auto-run.

Cloud & Fog Detection and Prediction System

Technical Parameters

	Technical Parameters
Cloud & Fog Detection and Prediction system	
Targets for detection	Cloud, fog, temperature, humidity, atm ospheric turbulence
Date Products	Visibility data, predict develop and decay of fog
Range of visibility	0~2000m
Resolution of visibility	50m
Alert time for fog develop and decay prediction	>0.5h
Millimeter wave cloud radar	
Frequency	Ka-band
Polarization	Horizontal/ Vertical
Range	150m-15km
Resolution of range	30m/60m
sensitivity	$\leq -35\text{dBZ}@5\text{km}$
Scanning mode	PPI/RHI/VOL/SPPI/SRHI/pointing
Data products	I/Q, spectrum, Z, V, W, LDR, SNR
Boundary layer wind profiler radar	
Range	150m ~ 3km
Resolution of height	60m/ 120m
Temporal resolution	$\leq 3\text{min}$
Date products	Spectrum, SNR, V, W, wind profile, vertical air flow, atmospheric refractive index constant
Microwave radiometer	
Channels	35 standard channels,21 K-band channels, 14V-band channels
Accuracy of Brightness temperature	0.5k
Data products	Temperature profile, humidity profile, water vapour, liquid water path.



Ka-band millimeter wave cloud & fog radar

Detected fog data display