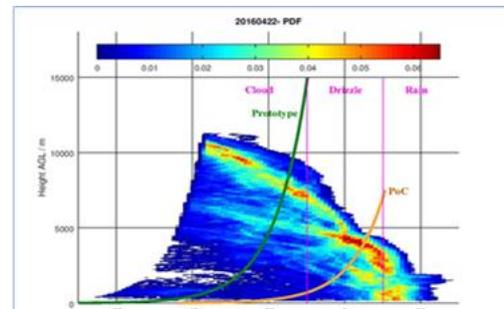


## Doppler Radar Cloud Profiler (DRCP)



### What is DRCP

DRCP is the first cloud radar targeting a ‘mass’ market for the operational applications in atmospheric remote sensing. It takes an innovative approach to bringing forward the ability to enhance weather observations for a range of markets.

### Improved forecasting requirements

Weather service providers in more than 100 developed and developing countries lack the information they require to improve the forecasting for clouds, fog and precipitation generated from them - an important aspect and driver of global weather. Numerical Weather Prediction (NWP) models still significantly struggle to provide accurate forecast information on this.

Options for improvement are limited; the number of human observers is diminishing and Laser Ceilometers are the only operational ground based observation methods. Whilst satellites provide cloud observations from space, their performance is limited by the approach taken. All of the current methods suffer from the known shortcomings of optical observation in low visibility or multi cloud layer environments.

### What does DRCP do better?

The DRCP provides an atmospheric observation system offering information on the vertical extent of cloud layering above lower level clouds, in dense fog and the presence of cloud layers above fog. Supported by the Innovate UK programme, an extensive Proof of Market project identified opportunities with several meteorological service providers across Europe for this level of forecasting, as well as a range of end users in the Air and Road Transport Operations sectors and applications in the Defence sector. A clear demand was established for the capability to determine atmospheric cloud droplet size and velocity data, and for the enhanced weather forecasts that would emerge once meteorological service providers have such data.

### How is DRCP delivered?

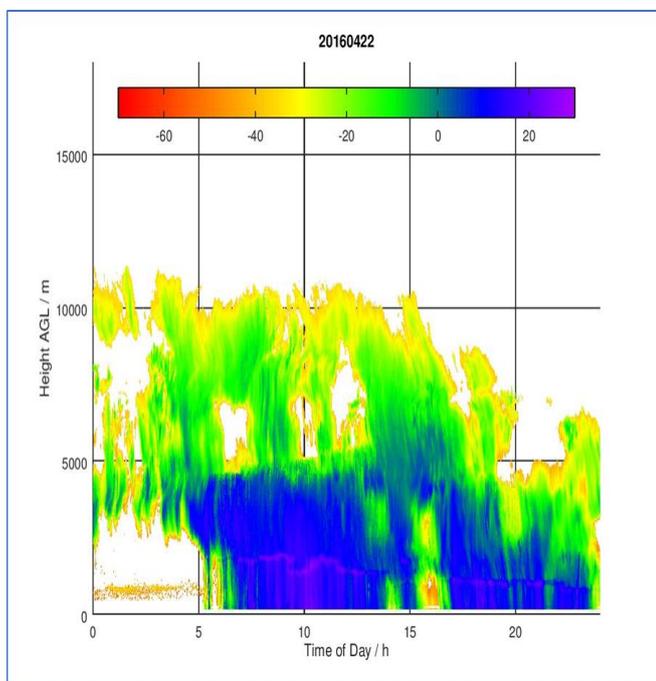
DRCP is a flexibly delivered modular platform comprising:

1. A unique modular RF design using a low number of COTS components;
2. An easily deployed system with a low cost of operational support
3. A highly reliable solid-state semiconductor platform for enhanced reliability and associated low maintenance costs
4. Frequency-Modulated Continuous-Wave (FMCW) operational mode to reduce cost and increase sensitivity
5. Small operational footprint for increased deployment and operational options
6. Flexible configuration to balance performance and user tasking dependent upon deployment scenario
7. Network enabled or standalone installation to meet the needs of end users, system integrators and service providers

## How is DRCP Different?

Unlike conventional approaches, and similar to the plot below, by providing granular detail of the atmospheric conditions *within* the cloud and by its associated precipitation, the height distribution of the backscatter intensity over a selected period can be clearly seen.

Colours from red to green indicates the presence of increasingly (optically) dense clouds. The green-blue area indicates the presence of drizzle, or for instance snow. Finally, dark blue and purple colours indicate the presence of precipitation, usually rain, but also severe snowfall, sleet and hail.



The scale shows the value of Z, the reflectivity factor, ranging from -70 to +30, itself a property of the hydrometeors present. The level of detail available is significant – enabling retrieval of the hydrometeors both in terms of the number in a cubic metre of air and their derived size.

The resultant analysis provides the distribution in the observed volume of the hydrometeors in order to calculate such additional data as rain rate, visibility within clouds, provides input into wider forecasts and determines the type of weather resulting – e.g rain, snow, sleet.

## What value is added by using DRCP?

The research and development behind the introduction of DRCP builds on world-leading expertise in atmospheric science gained from working within the world meteorological and atmospheric science community. It builds on specific scientific domain knowledge, commercial best practice and leading production skills focussed on bringing to market a truly innovative and value-adding product.

Specifically, the innovative approach to the development of the DRCP offers value in 2 key areas:

1. Options to tailor the collection platform installation to meet the operational requirement – balancing initial, runtime and performance considerations;
2. The opportunity for adoption against a range of commercial options for its procurement.

## How much does DRCP cost?

The DRCP is priced to be competitive with similar high performance and complimentary technologies used within the forecasting service sector.

## Why VisionAIR Klugmann?

VisionAIR Klugmann is a world-leading innovator providing solutions that advance the use of radar technology to support a range of weather-related services.

## Contact Us



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