



**Expert Insight:  
Supporting the Transition  
to Zero-Emissions Mining**

**ENERGY AND MINES**  
**VIRTUAL WORLD CONGRESS**

DECEMBER 8-9, 2020

# Measuring Your Renewable Resource



Fulcrum3D Sodar –  
wind monitoring



Fulcrum3D Met Station  
- solar monitoring



Fulcrum3D CloudCAM  
– solar forecasting



Wind Mast – traditional  
wind monitoring

## All-in-one Monitoring – wind & solar



- ▶ Wind and solar resource monitoring installed on over 180 projects
- ▶ Wind & Solar Forecasting
- ▶ Data Management – secure, reliable and easy to access
- ▶ Australian designed and manufactured
- ▶ In-house team of engineers, energy sector professionals, data scientists and technicians

## Data Management



# Some of our clients...



# Wind Monitoring



- ▶ Measuring at least 1 year of the wind data is critical
- ▶ Measurements can be carried out with Remote Sensing Device or mast
- ▶ 100m+ mast typically costs >\$200k Fulcrum3D Sodar installed for ~\$70k
- ▶ Easily deployable in <6 weeks Masts typically several months
- ▶ Fulcrum3D Sodar measure wind speeds up to 200m
- ▶ Includes current hub heights and more of the swept area of the turbine

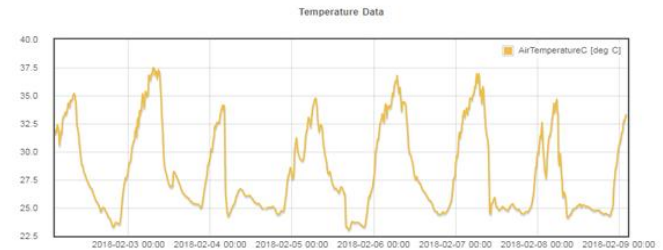
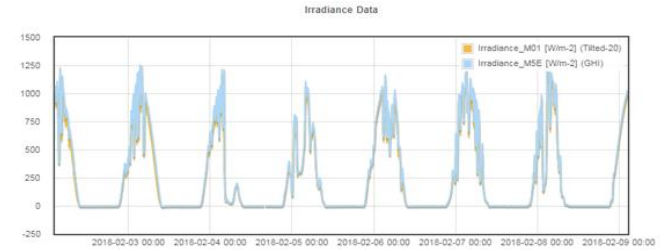
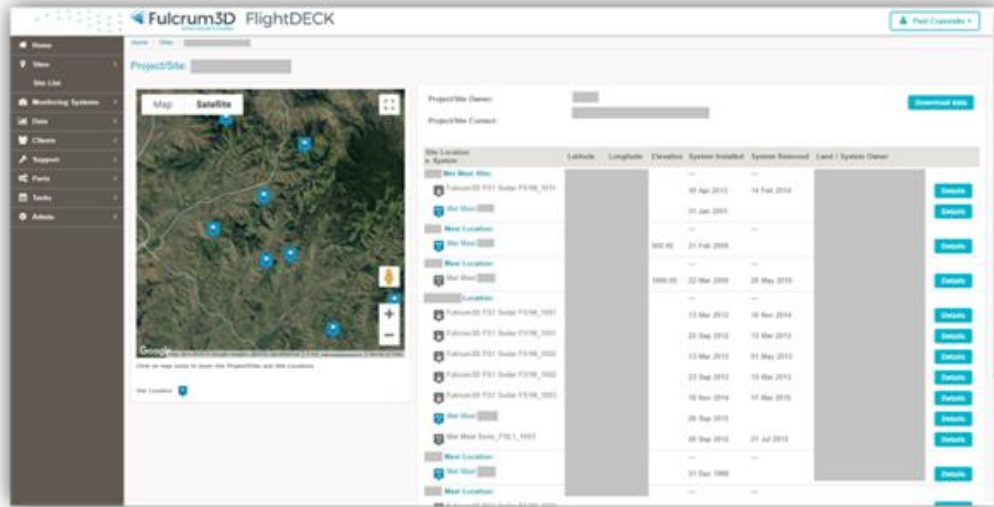
# Solar Monitoring



- ▶ Reduce uncertainty with on the ground irradiance measurements
- ▶ Albedo measurements are increasingly important with the advent of bifacial pv modules
- ▶ Met Station instrumentation design in line with that used on operational solar farms
- ▶ Easy to set-up and relocate from project to project
- ▶ Fulcrum3D provide maintenance and calibration services
- ▶ High resolution data available through Fulcrum3D FlightDECK



# FlightDECK – Data Acquisition

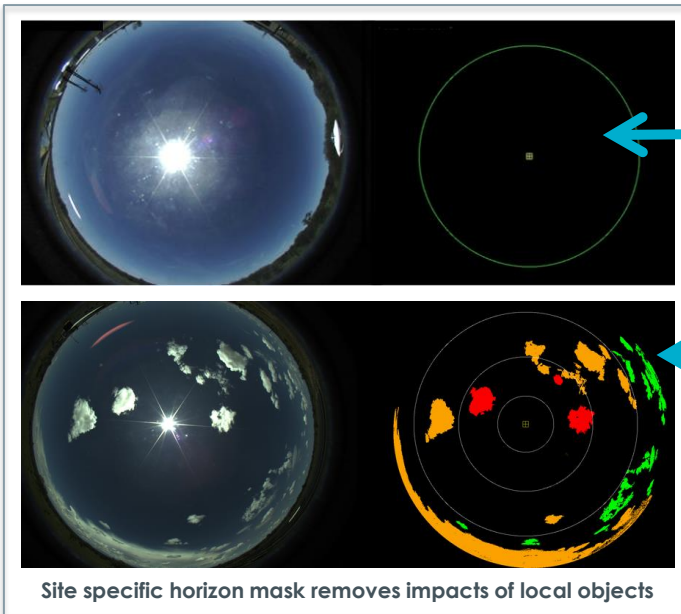


## Live data access on the fly

FlightDECK provides you with secure access to all data collected by Fulcrum3D monitoring systems

- Collects, stores and verifies client data for secure download over the web
- Allows users to manage their equipment locations and configurations
- Data can be made available via machine-scripted download

# Wind & Solar Forecasting



Clear sky...  
No cloud detected

Robust cloud...  
Detected and identified



**Thank you**

# Questions?



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