



DeTect, Inc. specializes in radar technologies and services delivering systems for meteorology, aircraft safety, biological survey, and airspace/ground security applications supporting projects worldwide. Our professionals have proven track records in delivering cost-effective, workable solutions for high profile, diverse, complex projects offering the highest level of service and quality.

DeTect's RAPTOR Radar Wind Profiler is an advanced new generation of digital wind profilers that offer unequalled performance and value

RAPTOR Radar Wind Profilers

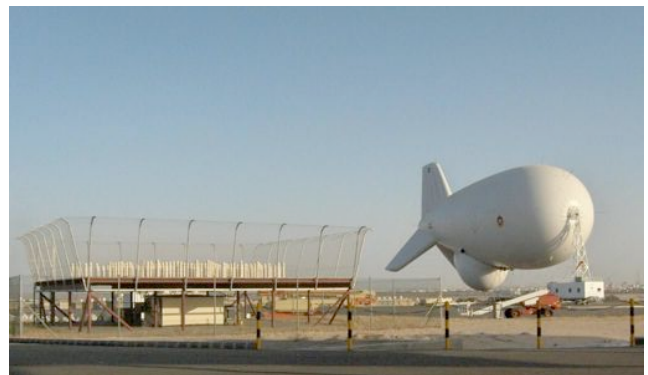
Radar wind profiler (RWP) technology has advanced significantly over the past five years as computer hardware and software have become significantly more capable and as faster analog-to-digital converters (ADC's) utilizing on-board full digital-down-converters have become readily available. This has resulted in a new generation of modern radar wind profilers that are more reliable and more capable and that produce higher quality measurements than conventional systems.

DeTect's Meteorological Systems Group is at the forefront in advancing RWP technology and has developed a new generation of modern systems that incorporate the latest in digital processing technology and functionality delivering significantly improved system performance and reliability. DeTect's engineers have a broad range experience in design, development, testing, installation, operation, maintenance and data analysis on many operational and research wind profiler systems worldwide. This includes development and application of advanced signal processing techniques for wind profilers for government, aviation and industrial clients.

The DeTect RAPTOR line of Radar Wind Profilers provide unattended, real-time operational support for weather forecasting, aviation operations, and other applications demanding high quality meteorological data

products. RAPTOR systems utilize full electronic beam steering which enables rapid switching, high reliability and low operating cost. Along with a fully digital receiver system and advanced signal processing, the result is superior data products at high temporal resolution suitable for true operational applications. The addition of a Radio Acoustic Sounding System (RASS) provides vertical profiles of virtual temperature.

RAPTOR systems are modular and built to high standards incorporating commercial-off-the-shelf (COTS) components to reduce costs of ownership and enable ongoing technology insertion and upgrade opportunities.



DeTect RAPTOR 192e-2 kW tropospheric system installed in India. Antenna full beam-steering technology automatically points the main beam away from the aerostat while in flight to allow high quality wind measurements.



RADAR WIND PROFILER SYSTEMS

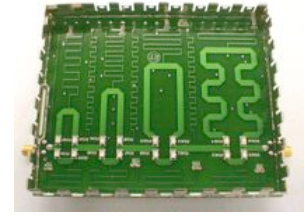


RAPTOR wind profilers have been developed from the “ground up,” with renewed emphasis on reliability and long term sustainability. The design meets a wide spectrum of user needs from large Stratospheric-Tropospheric (ST) profilers to small planetary boundary-layer (BL) systems. For most ST applications, systems are built to operate in the 400 – 500 MHz band with models available to 1 GHz also offered.

The ST systems employ a unique Yagi antenna array, which along with the transmitter, is designed to be scalable so that custom configurations can easily be derived from a single design to meet target wind height availability specifications. For BL-only applications, systems in the 800-1500 MHz range are available. The BL systems employ micro-patch antenna technology to allow small antenna sizes.

With solid-state phase-shifters, the RAPTOR systems have no moving parts, no expensive consumables and are extremely reliable. This technology enables the radar to form a beam at any azimuth angle (0 to 360 degrees) and at any zenith angle from 0 to 21 degrees.

DeTect’s RAPTOR RWP system represents the state-of-the-art and incorporates modern software, signal processing techniques and data acquisition hardware. As the unit was designed and engineered from the “ground up” the system incorporates a renewed emphasis on reliability, sustainability, and long-term supportability.



DeTect RAPTOR third generation Yagi element and phase shifter produce a low-sidelobe antenna array beam greatly reducing possible external interference to wind profiler from clutter and radio frequency interference.

Systems are built to US and international standards incorporating commercial-off-the shelf (COTS) components where possible to deliver users low acquisition cost, reduced costs of ownership, and ongoing technology insertion and upgrade opportunities over the life of the system.

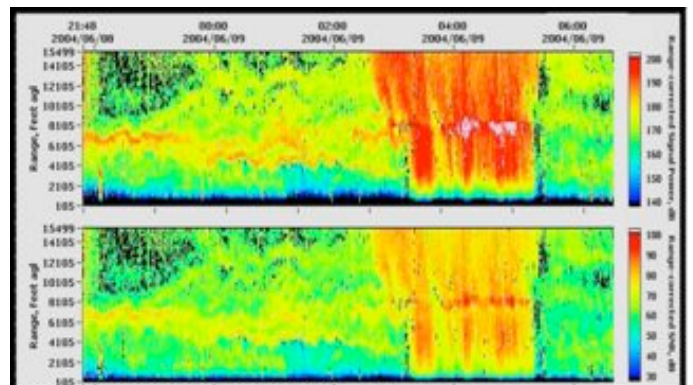
RAPTOR™ Software Application Suite

The RAPTOR system is controlled by a graphics-rich suite of user-friendly software called BIRCH (for Basic Interface for Radar Control and Health). BIRCH has a comprehensive set of displays of data and radar status to support high quality, reliable operations. Highly advanced signal processing software is implemented in ASPEN (for Advanced Signal Processing ENgine) which uses time-height continuity algorithms and other quality control routines to produce high quality data products.



DeTect RAPTOR modules and software can be used to upgrade and/or replace legacy hardware. These upgrades include all subsystems of the original unit. Upgrades will improve data quality and reliability.

ASPEN display of range corrected radar returned power (upper) and Signal to Noise Ratio (lower). Image shows turbulent layers and clouds. The melting-layer is evident during the rain storm as an area of enhanced reflectivity or “brightband”.

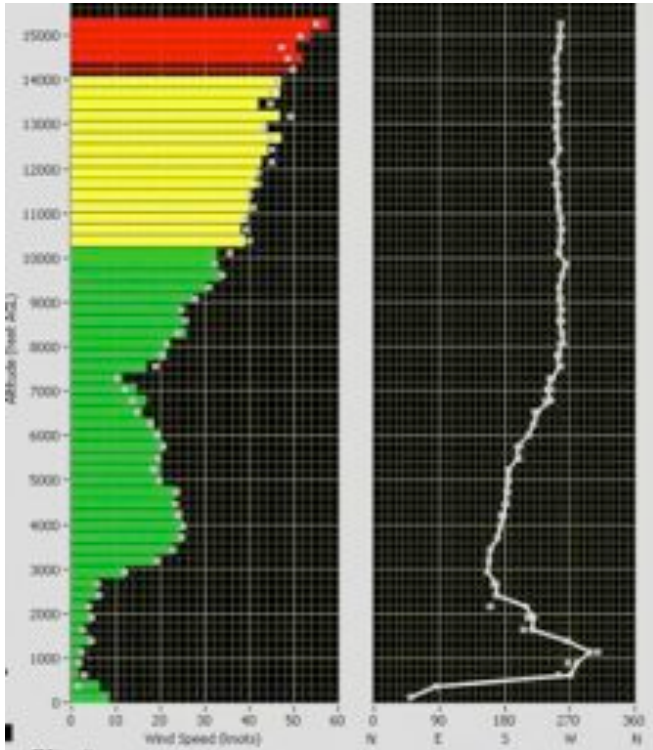
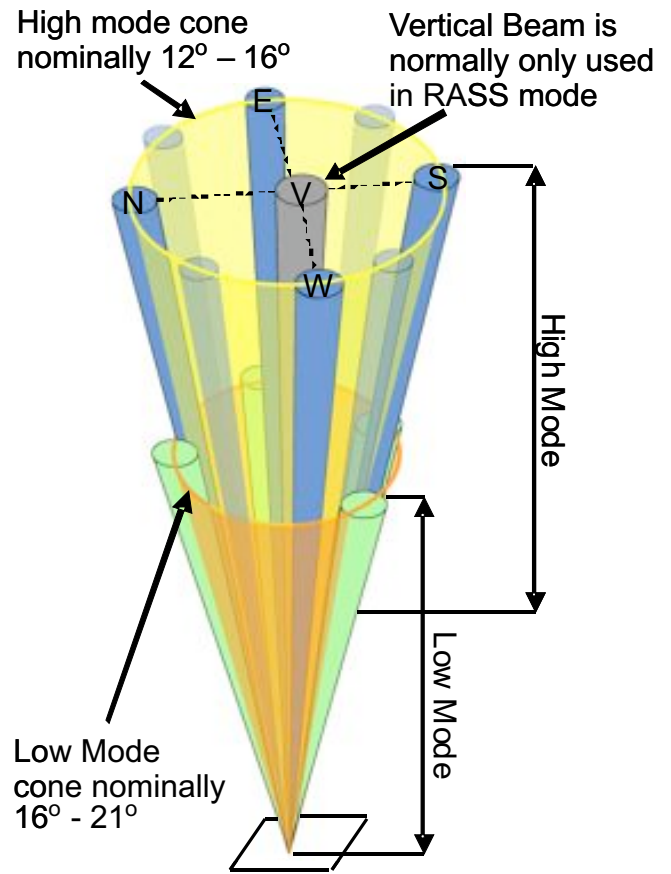


Application Oriented Design

DeTect's team of radar experts has assembled a suite of tools to determine performance of various profiler configurations, and works with each client to determine the most cost effective solution for the project and application. DeTect offers a complete range of siting, design, installation, training and operational support services and post sales support. RAPTOR systems are available for purchase with lease and lease/purchase options also available.

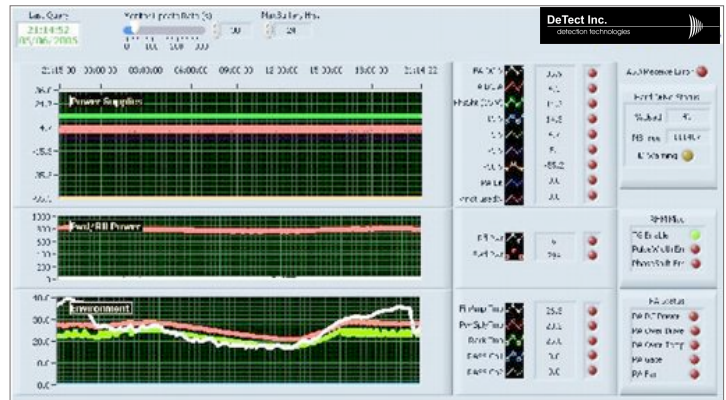
Customization of hardware (mobile, trailer mounted for small scale systems) or software is also available for specific customer needs. DeTect works closely with each user to fine tune the system to match specific requirements. The RAPTOR™ technology also can be applied to virtually any existing wind profiler as an upgrade to improve performance.

The RAPTOR highly agile beam pointing technology produces higher quality data products and allows more pointing strategies.



Operator-friendly display of wind speed and direction. The wind speed plot was customized for Aerostat operations, and uses flight-rules and color-coding to display wind speed.

RAPTOR includes a complete full time System Health & Safety monitor to support reliable, continuous operation and deliver superior data quality.



COMPANY & CONTACT INFORMATION

DeTect specializes in development and deployment of advanced radar detection technologies for meteorology, aviation safety, security and environmental applications. DeTect's products are supported by highly experienced former U.S. military and NOAA engineers, scientists, programmers, biologists, and meteorologists who are experts in remote sensing, radar engineering, system integration and project management.

DeTect products include:

- ✘ Aircraft Birdstrike Avoidance Radars
- ✘ Bird & Bat Survey & Monitoring Radars
- ✘ Bird Control Radar Systems
- ✘ Airspace & Marine Surveillance Radars
- ✘ Aircraft Detection & Surveillance Radars
- ✘ Marine Surveillance Radar Networks
- ✘ NEXRAD Radar Data Products
- ✘ Radar Wind Profilers
- ✘ Low cost weather radars, visibility sensors, & lightning detectors

DeTect services include:

- ✘ Bird-Aircraft Strike Hazard (BASH) Management
- ✘ Airfield & Industrial Bird & Wildlife Control
- ✘ Wind Energy Project Wildlife (Bird & Bat) Impact Assessment
- ✘ Radar System Solutions Engineering, Design & Development
- ✘ Environmental Planning & Analysis (NEPA) support
- ✘ Avian Radar Survey & Risk Assessment
- ✘ Data Management & Geographical Information Systems (GIS)

DeTect systems have been deployed at facilities and projects worldwide - including sites in the U.S., Canada, England, Europe, the Middle East, Asia and Africa - with a proven record of exceptional performance, reliability and operability. Customers include the U.S. Air Force, NASA, NOAA, the US Geological Survey, the U.S. Army, and the governments of Canada and the United Kingdom.

