

Leaders in Ground-Based Atmospheric Remote Sensing

News In Brief:

Conferences:

- Prof. Iain Reid will be attending the International Symposium on Equatorial Aeronomy (ISEA12) in Crete from 18-24 May 2008

Upcoming Installations:

- Ionospheric Analyser to be installed in China in June 2008
- Boundary Layer Profiler to be installed at East Sale, Australia in July 2008 [delayed]
- MF Radar upgrade to be installed at Tirunelveli, India in June 2008

Recent News:

- Buckland Park Doppler ST/Meteor radar upgraded—coverage to 20km AGL
- New Hainan EMDR20 Enhanced Meteor Radar is the latest to routinely record over 20,000 meteors per day
- ATRAD was recently awarded a “Commercial Ready Plus” grant to support the development of an exciting new product due to commence field trials in the latter half of 2009—stay tuned for more news.

A Message from ATRAD



These are exciting times for ATRAD.

In 2006, ATRAD launched its new STX-II series solid-state pulse radar transmitters.

The upcoming delivery of a

SIA 24/6 Steerable Ionospheric Analyser

After the highly successful launch of its STX-II series solid state transmitters, ATRAD embarked on an upgrade programme to bring all of its VHF radar products up to the new standard.

When it came to upgrading ATRAD’s earlier generation Ionospheric Radar product, it was decided to go one step further and add a new beam-steering capability.

The result is the SIA 24/6 Steerable Ionospheric Analyser.

It is a Coherent Doppler Backscatter radar suitable for observations of Ionospheric Irregularities in the E & F Regions.

The standard product is a 24kW transmitter equipped with a 6 channel receiver system. Higher power outputs up to 96kW are also available.

Steered Ionospheric Analyser to China later this year will mark the completion of a programme to migrate all of ATRAD’s VHF radar products to the new STX-II platform.

But far from simply substituting a new transmitter in place of an older one, ATRAD has completely re-engineered the RF signal paths for the radars, paying particular attention to cabling and switching systems.

This attention to detail has paid great dividends in radar performance, as evidenced in the very high meteor count rates being obtained from all new EMDR meteor radars.

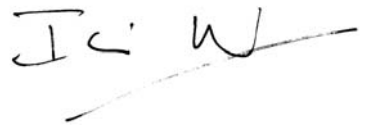
The system can be used with fixed or steered beams and in either monostatic or bistatic applications.

The beam-steering system can also be configured to traverse a narrower azimuth range but with a higher step resolution.

When combined with an optional All-Sky Meteor Interferometer array, capabilities can be extended to include Meteor observations.

The University of Adelaide ST Radar located at the Buckland Park research site was also recently upgraded (see separate story). Early indications are that an overall improvement in radar sensitivity of up to 10dB has been achieved, with Doppler Mode coverage extending up to 20km AGL.

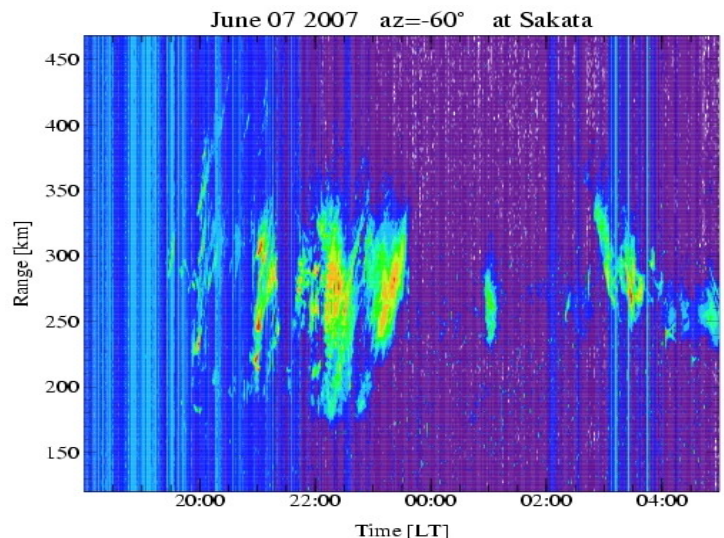
Yours Sincerely,



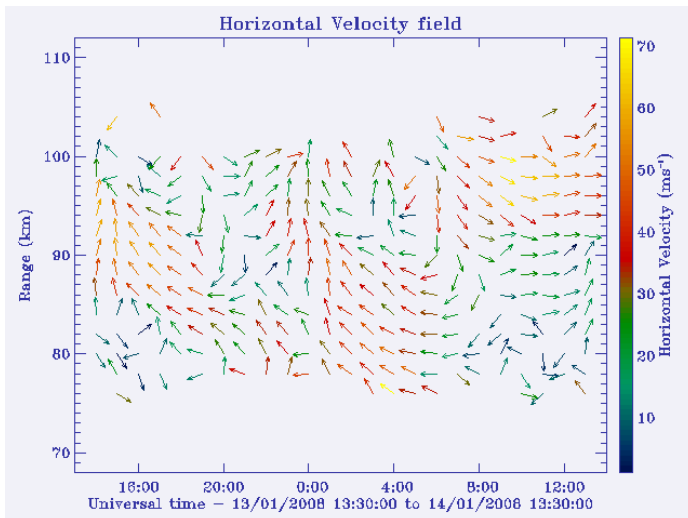
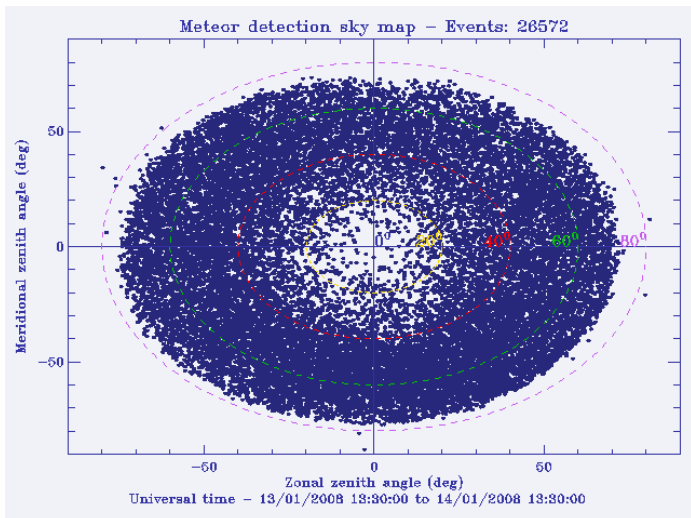
Prof. Iain Reid
Executive Director

Key features:

- Observation of Ionospheric Irregularities in the E & F Regions
- Monostatic, Bistatic and Receive Only configurations
- $\pm 20^\circ$ Azimuthal Steering range with better than 1° Step resolution
- 80—850 km sounding range
- 24kW output power
- 2 x 12 array



Exceptional Performance from EMDR Meteor Radars



Since their release in late 2006, ATRAD has installed its Enhanced Meteor Detection Radars (EMDR) in several sites around the world.

The EMDR series of radars is an upgraded version of ATRAD's successful MDR5 product.

While at first glance the

KEY EMDR PERFORMANCE ENHANCEMENTS

- Higher transmitter power and duty cycle
- 8-80kW power range
- Modular transmitter architecture (rapid replacement)
- Gysel combiners
- Modular power supply with redundant capability
- Improved radar transceiver sensitivity
- Improved transceiver noise performance
- Improved overall RF performance
- Improved data analysis & filtering algorithms

EMDR may appear simply as an MDR5 upgraded with a new STX-II transmitter, in reality it has been completely re-engineered.

This improved performance has been proven at a number of sites, with meteor counts routinely exceeding 25,000 counts per day in some locations.

Major Upgrade for University of Adelaide VHF Meteor / ST Radar

The University of Adelaide operates a combined VHF Stratospheric/Tropospheric (ST) and Meteor mode Radar at its Buckland Park research site.

As part of a major radar upgrade, ATRAD installed a new ST40 Transmitter (40kW PEP) and over-hauled the switching and beam-steering system to enhance radar performance.

For Doppler mode operation, the radar uses a 12 x 12 array of 3-element Yagi antennas with a relay-switched beamsteering system to achieve 5-Beam Doppler operation (Vertical plus NESW at 15° off zenith).

For operation in Meteor

mode, the radar is equipped with an independent Meteor transmit antenna and an all-sky meteor interferometer receiver array. When operating in meteor mode, the full transmitter power is switched to the Meteor transmit antenna.

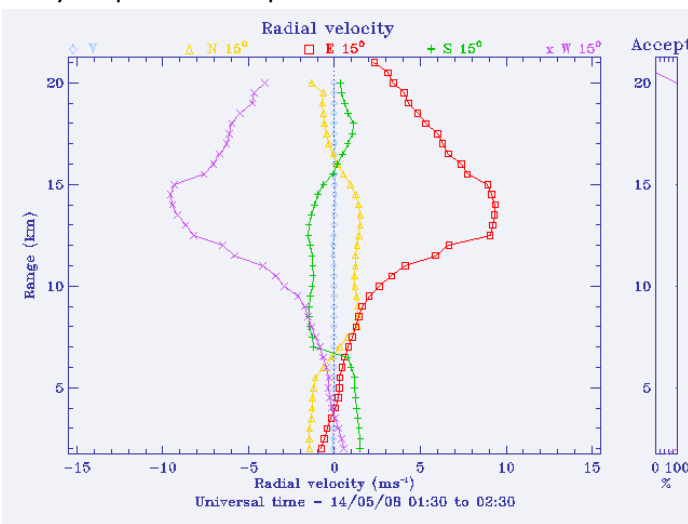
The radar is not in an optimal location—it is collocated with a Weatherwatch radar and an aircraft pilot training circuit operates directly overhead.

The radar performance is still being optimised but early indications are that an overall improvement of radar sensitivity of up to 10dB has been achieved.

The radar is only operating

with a low duty-cycle (Gaussian monopulse at ~3.5% duty cycle) during this early optimisation phase.

Even so, current results show reliable Doppler Mode coverage extending up to 20km AGL.



For live results, see www.physics.adelaide.edu.au/atmospheric/results.html



ATRAD PTY LTD
ABN 72 112 121 801

FURTHER INFORMATION

Email:
sales@atrads.com.au

Web:
<http://www.atrad.com.au>

HEAD OFFICE

1/26 Stirling Street
Thebarton SA 5031
Australia

Telephone + 618 8303 3493
Facsimile + 618 8303 3489