(Received from Jeff – NK0L – Jan. 12, 2006) (photo by ve7bzc)

Hello Norm,

You asked for some information on the work I'm doing. My work has been published many times so I assume you are referring to my co-discovery of a long period, earth threatening comet. That article was already published. Here is the info on that paper:

Title: The 2005 October 5 outburst of October Camelopardalids
Co-authors: Peter Jenniskens (NASA), Jarmo Moilanen (Finland), Esko Lyytinen (Finland), Illka Yrjola (Finland), and Jeff Brower (Canada)
Journal: WGN, The Journal of the International Meteor Organization 33:5 (2005) pp125-128
NASA-ADS bibcode: 2005JIMO...33.125J

My role involved using forward scatter radar techniques, to confirm the Finn's researcher's Video - CCD (charge coupled devices) recording of an meteor outburst lasting less than 1 hour. Narrow outburst are the signature of a long period comet, or a new visitor to our solar system. I was the only non-European that detected the outburst via the reflected TV carrier using Channel 3 (+ offset) in Bend, Oregon. Thus, my data was used as an independent source to confirm the Finn's data.

The paper that I am working on currently is titled: Forward Scatter Observations of the Radio Maxima during the 2006 Quadrantids (QUA) - A Global Review.

The Quadrantid shower peaks visually, on January 3rd each year. This year the visual peak came at 18:20 UT or 10:20 Pacific Standard Time, which of course is during the daylight. I was therefore the only observer able to observe the peak because I used radio forward scatter techniques to detect each meteor burning up between 120 and 80 km in the E-layer of the ionosphere.

The Quadrantid shower is a very intense and sharp shower. It is also interesting because there is a huge debate going on for over a decade and a half about the parent source of this meteor shower. It has a wide stream of dust (it takes earth 8 days to cross it) that the earth passes through but at the peak it also has a very dense and compact inner core (it takes earth only 1-2 hours to cross through it). The meteor counts go up to nearly 120/hour visually and over 300/hour radio wise, as the earth crosses the dense inner core of the stream.

The inner stream is known to be very young -- it hasn't been spread out via Jupiter's massive gravity field. The outer, less dense part of the stream has been around for over 5,000 years and has been dispersed by Jupiter's gravity wells. So the big question is, why do we have an old and a new component to the meteor shower?

As mentioned above, we still are not certain of the progenitor, or

parent source of the Quadrantid shower. We now have two comets, an astroid, and NEA (Near Earth Astroid) astroid that is the dead nucleus of an now extinct comet as candidates for the source of the debris/meteoroids. The extinct comet/NEA mimics the comet that broke up over Jupiter a decade ago and orbit simulations make this theory a strong contender. We think the wide portion of the stream = the old, intact comet while the inner compact core = the venting of a fragment of the now extinct comet aka NEA astroid, 2003 EH1.

To help put a light on progenitor problem, I am taking a look at the mass sorting of the various sized meteoroids as seen via radio reflections off the plasma trails of the in falling meteors. I noted a significant radio peak 6 hours after the visual peak, which tells us a lot about mass sorting, gravity dispersion, and so on. This will augment some of the past work done by CMOR, the Canadian Meteor Orbit Radar, located in Ontario - http://aquarid.physics.uwo.ca/cmor.htm

Pretty boring stuff if you're not one of a handful of people that enjoys figuring out how our ancient solar system became what we know it as today.

FYI: my live data can be seen at:

http://members.shaw.ca/jbrower/index.html

http://radio.data.free.fr/main.php3#Jeff_Brower

My next project:

I've been asked by NASA to record and report any re-entry signatures of the Stardust spacecraft's return capsule re-entry to Earth's atmosphere on January 15 at 09:56 UT/01:56 a.m. PST. The capsule contains samples of interstellar dust, remnants from the formation of our solar system, that will provide scientists with information about the formation and evolution of our Sun and planets in our solar system. It was launched in February 1999 and successfully rendezvousing with Comet Wild 2 in January 2004.

Here's NASA's Mission statement for HYPERSEED: Hypervelocity reentries and deposition of organics in large meteors

STARDUST SRC ENTRY OBSERVING CAMPAIGN

Mission statement

2006 January 15: An airborne and ground observing campaign to test thermal protection systems in the fastest reentries since Apollo and probe the delivery of organics for life's origin by measuring the physical conditions during reentry.

I'm one of the ground observing campaign members. I wanted to be on the research aircraft but my role doesn't require that.

More than you wanted to know, I'm sure - but thanks for asking! ;-)

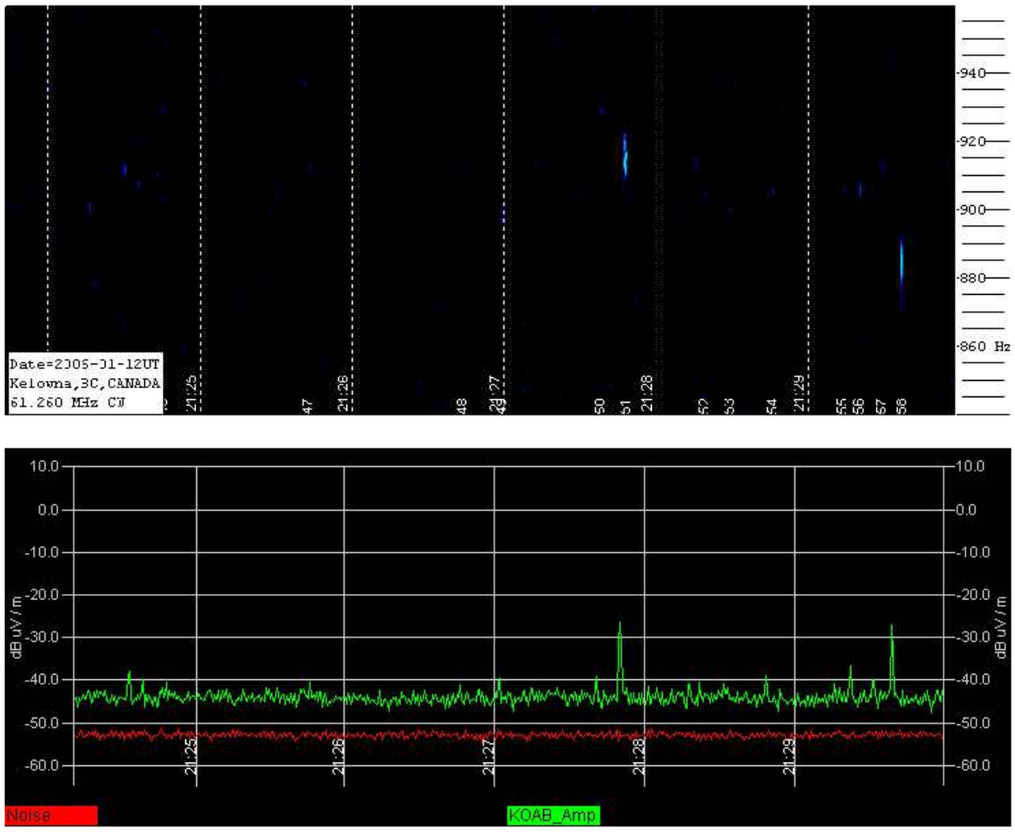
Fantastic !!
Thanks Jeff

73 Norm :-)

Jeff ;-)

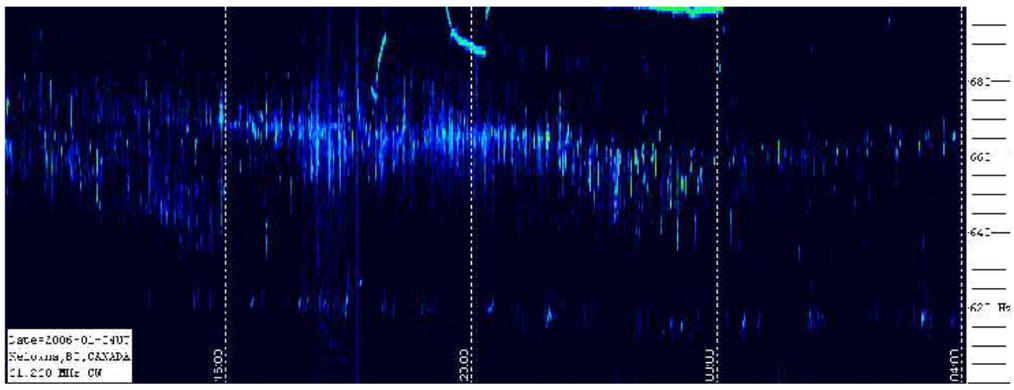
Near realtime meteor activity observations from Kelowna, British Columbia - Canada
Using Forward Scatter on 61.260 MHz

Experimental: Counting refelctions between 880 Hz to 970 Hz only.
This is not the data used in the RMOB/RM Observatories On Line reports.



This page will update every 5 minutes

Spread Spectrogram showing QUA Shower:



TV video carriers used for forward scatter detection:

Station	QTH	Bearing	km	kW
KOAB-TV	Bend, OR	193	655	58.9

Sample Capture from Jeff's page... by Norm - ve7bzc ...you can see these pages live by clicking Jeff's links above!

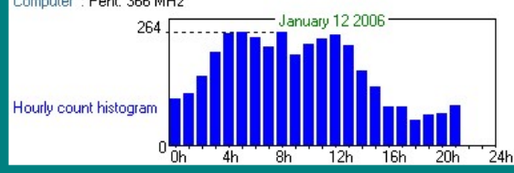
Radio Meteor Observatory's On Line

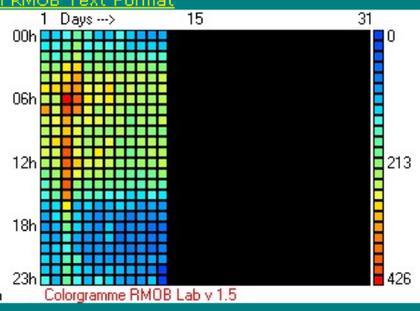
About Radio Meteor Observatory's DATA

Click on red points onto this World Map to see observer datas

Swan January 2006 Datas in RMOB Text Format

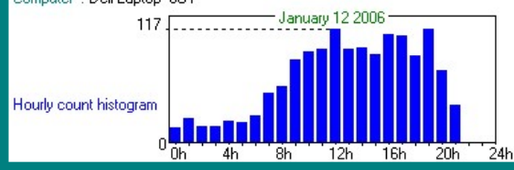
Observer : Dave Swan
Country : United Kingdom
City : Christchurch
Antenna : 5 Ele. Yagi Az. : 190° El. : 12°
RF Preamp None
Receiver : AR-3000A
Computer : Pent. 366 MHz
Location : 001°4400 West
050°4700 North
Frequency : 55.25 MHz

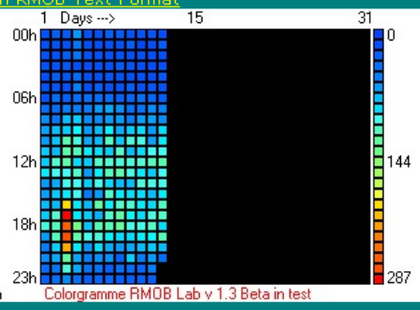




Brower January 2006 Datas in RMOB Text Format

Observer : Jeff Brower
Country : Canada
City : Kelowna, British Columbia
Antenna : 15 m loop Az. : 90° El. : 0°
RF Preamp none
Receiver : IC-PCR1000 cw mode
Computer : Dell Laptop -8UT
Location : 119°3350 West
049°5081 North
Frequency : 61.260.135 MHz





Knol January 2006 Datas in RMOB Text Format

Observer : Peter Knol
Country : Netherlands
City : Appingedam
Antenna : Vertical wire dipole at 5 meter from the ground.... Az. : ° El. : °
RF Preamp No preamp *M_Analyzer(a)
Receiver : Alinco DX 70 *Es interference data deleted....
Computer : P166 + M-Analyzer *http://members.home.nl/peter-knol/meteors/
Location : 006°5112 East
053°1908 North
Frequency : 53.739,540 MHz USB