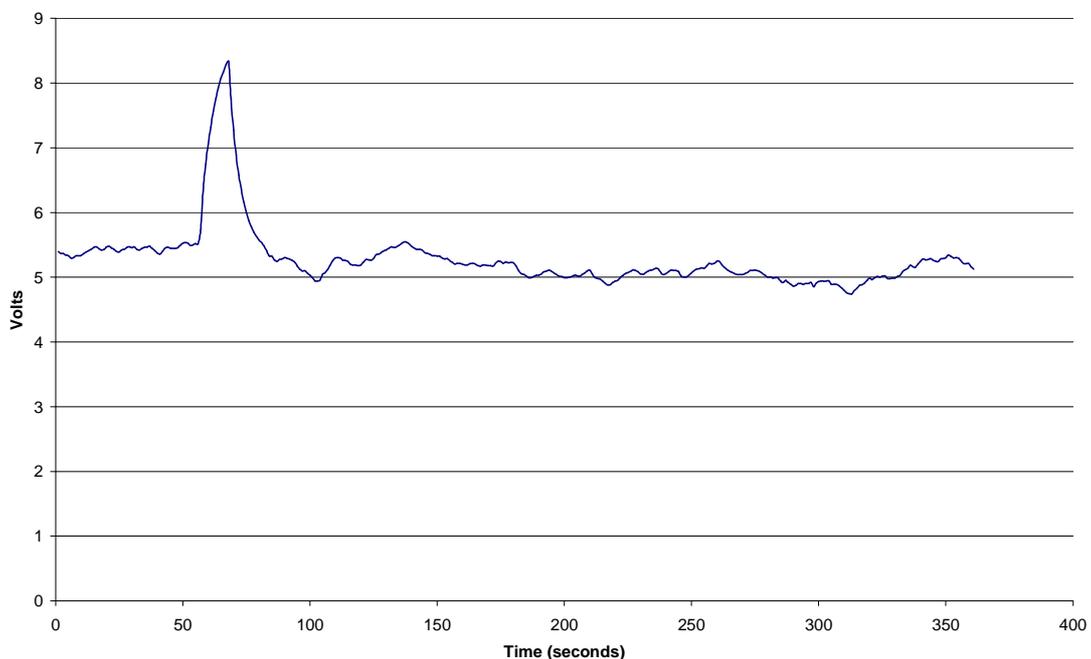


GRB080919 – VLF – UHF
Observation

Show below is what appears to be a GRB (Gamma Ray Burst) event observed first on the VLF (40 kHz) when the Gamma Rays hit the earth's ionosphere creating a change in the F1 and F2 layers similar to sun rise. A very small amount of time later the radio "after glow" of the GRB reaches the earth, at 406 MHz this energy pass through the earth ionosphere and reach the radio telescope tuned to the above listed frequency.

Many of the radio astronomers who are looking at the data from the 406 MHz radio telescope may have seen this type of event before we call them HEP's (High Energy Pulses), this is the **first direct link between HEP's and GRB**. But there is one more bit of information on this GRB, the SWIFT spacecraft also report a GRB at about the same time giving the event it official name GRB080919.

VLF Event/Possible GRB



The event was observed on September 19, 2008, using the radio telescopes of GRRO (Grand Rapids Radio Observatory), located in Grand Rapids Michigan. The 40 kHz radio telescope receiver was built by Radio Astronomy Supplies it is feed by a dipole several hundred turns of wire mounted on a 3 inch diameter, 10 foot long PVC pipe. The 406 MHz receiver was build by Radio Astronomy Supplies and is feed by a 3.1 meter dish antenna.

Time Line VLF Event:

The plots both start at 19:48:31 Eastern time or 23:48:31 universal time.

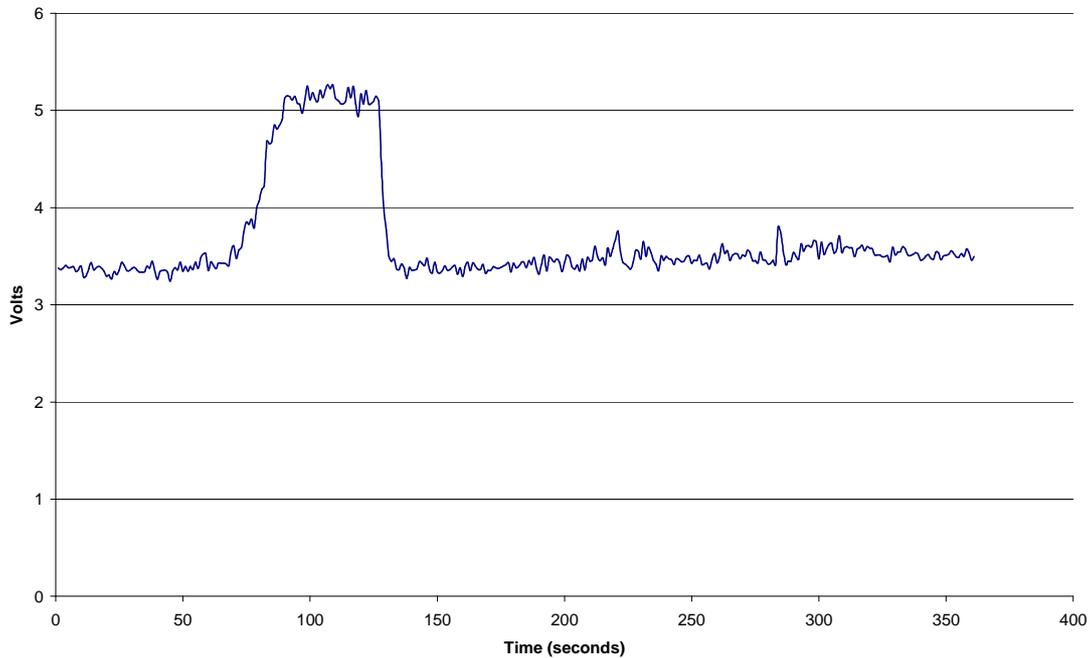
The VLF Event start is 23:49:28 universal.

High point of the VLF Event is at 23: 49:39

End of the VLF Event is at 23:50:00

GRB080919 – VLF – UHF
Observation

UHF Event/Possible GRB



Time Line UHF Event:

The plots both start at 19:48:31 Eastern time or 23:48:31 universal time.
The UHF Event starts at 23:49:40.

SWIFT Satellite Observations:

A search of the GRB data base's found that Gamma-ray Burst 080919 was observed at about the same time see the web page listed below for more information:

<http://www.mpe.mpg.de/~jcg/grb080919.html>

Note that there is a difference in the time that that Swift Satellite reported as the event and the observed time of the VLF and UHF radio telescopes. More analysis is needed in this area. The VLF and UHF radio telescopes are conned to different computers, each of computers has it internal clock set by the US Navy clock via the internet at the start of each day (~ local sun rise).

Summary:

Due to the fact that we have 3 sources of data, the VLF, and UHF observation along with data from the Swift satellite all in the same time line and the fact that the UHF observation looks like HEP (High Energy Pulses). We may have found the source for some of the HEP's events observed by the radio astronomy community. More analysis will be done to see if this theory holds. For radio observatory that have similar equipment, please contact the author for more details on the methods used for the observations.

GRB080919 – VLF – UHF
Observation

Background Information:

Gamma ray bursts emanating from seemingly random places in deep space at random times. The duration of a gamma-ray burst is typically a few seconds, but can range from a few milliseconds to several minutes, and the initial burst is usually followed by a longer-lived "afterglow" emitting at longer wavelengths X-ray, ultraviolet, optical, infrared, and radio. Gamma-ray bursts are detected by orbiting satellites about two to three times per week. For more information see the web page listed below

http://en.wikipedia.org/wiki/Gamma_ray_burst

HEP's have been reported for a number of years by radio astronomers making observation at both 406 and 1420 MHz with smaller radio telescopes.

References:

Searching for Pulses by Dr. Michael E. Valdez
<http://home.mchsi.com/~mikevald/Pulses.pdf>

The Search for HEPs – Jim Sky
<http://www.radiosky.com/project.html>

The earths Ionosphere (Wikipedia):
<http://en.wikipedia.org/wiki/Ionosphere>

Radio Astronomy Supplies:
<http://www.radioastronomysupplies.com/>

SARA – Society of Amateur Radio Astronomers
<http://www.radio-astronomy.org/>

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