

Coordinated Observations 10/2004

By Bill Pine
Ontario, California

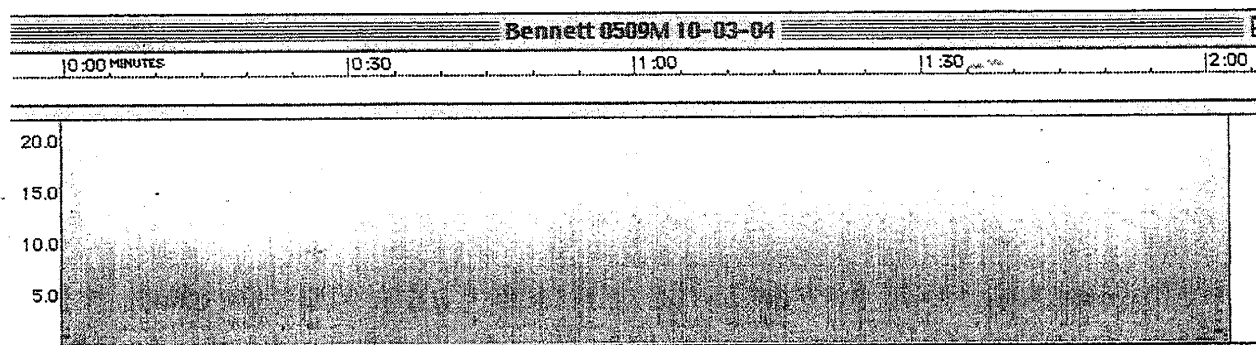
All INSPIRE participants are encouraged to make observations and send their data tapes and logs in for analysis. The *Journal* would like this report to reflect the activities of all observers. Any data is good data! Please send data tapes regardless of how "successful" the session turned out to be. See Page 4 of the *Journal* for formats and procedures.

Coordinated observations were made on Saturday, October 3, 2004, by Robert Bennett in New Mexico and Shawn Korgan in Colorado. Bob and Shawn are probably the most faithful and experienced INSPIRE participants

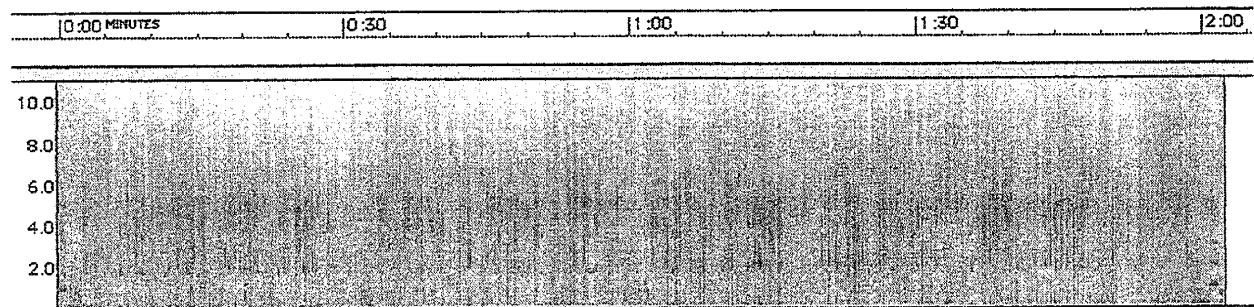
1100 UT (5 AM MDT)

Robert Bennett

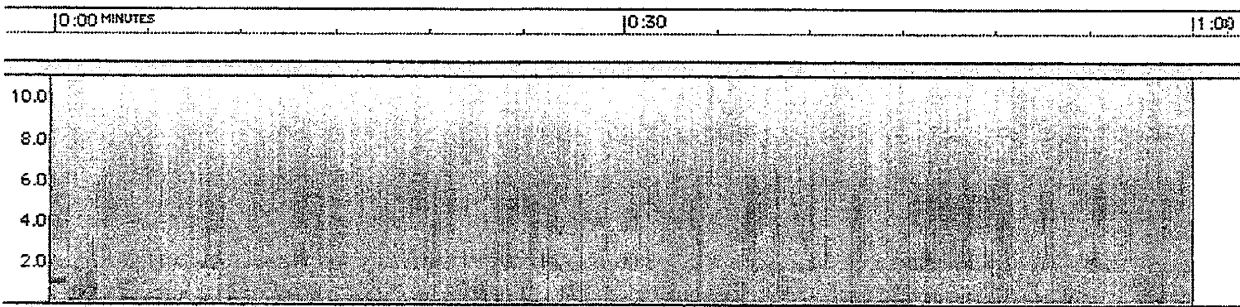
Las Cruces, NM



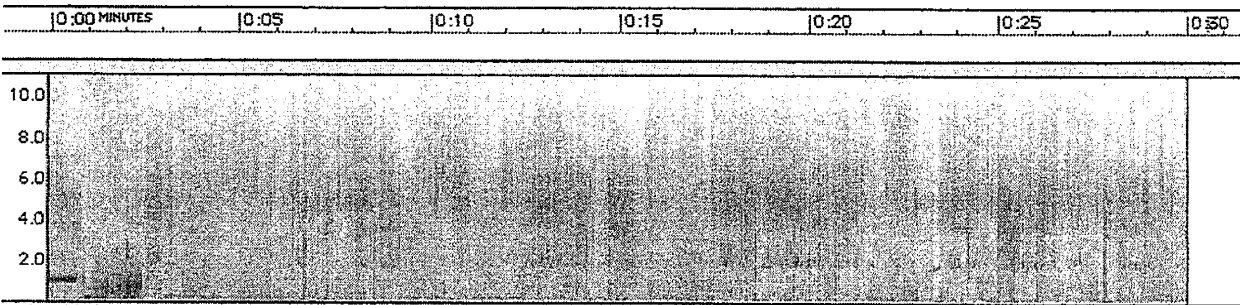
Robert reported the presence of a thunderstorm about 30 miles to the southeast of his observing site. Local lightning (lightning within a few hundred kilometers) shows up on the spectrogram as closely spaced vertical lines and sounds on the audio like many sharp pops.



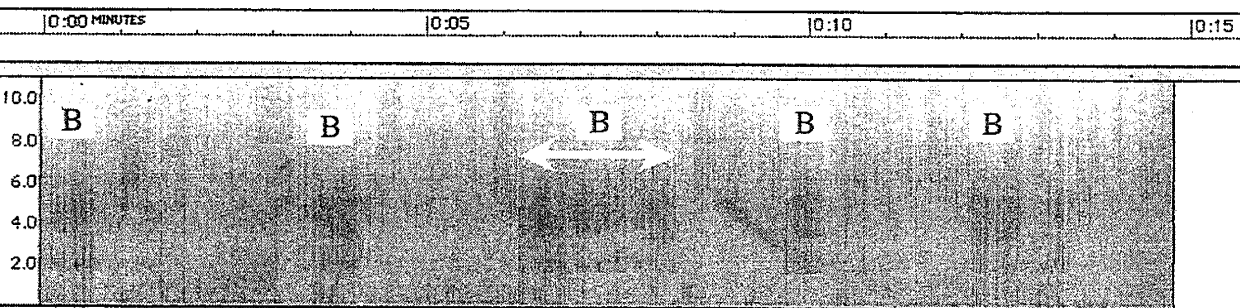
0-11 kHz frequency range.



First minute.



First 30 seconds.

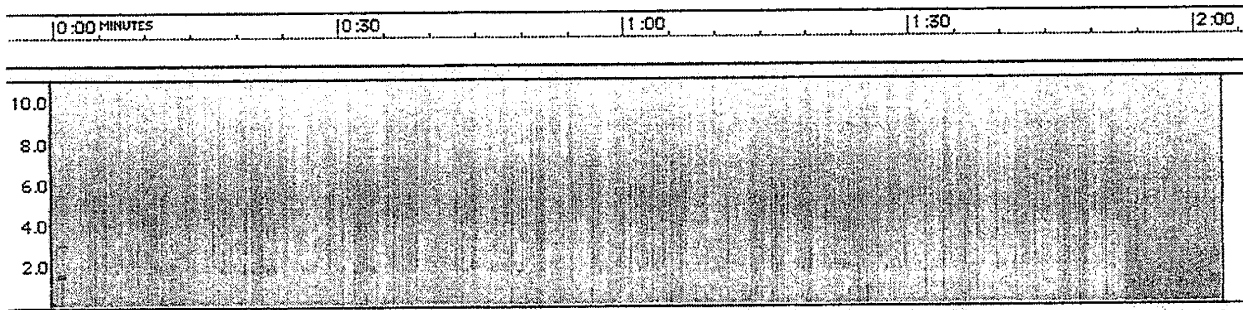


Fifteen seconds starting at :30 seconds. A whistler appears at :39 seconds. Tweeks appear in bursts (labeled B).

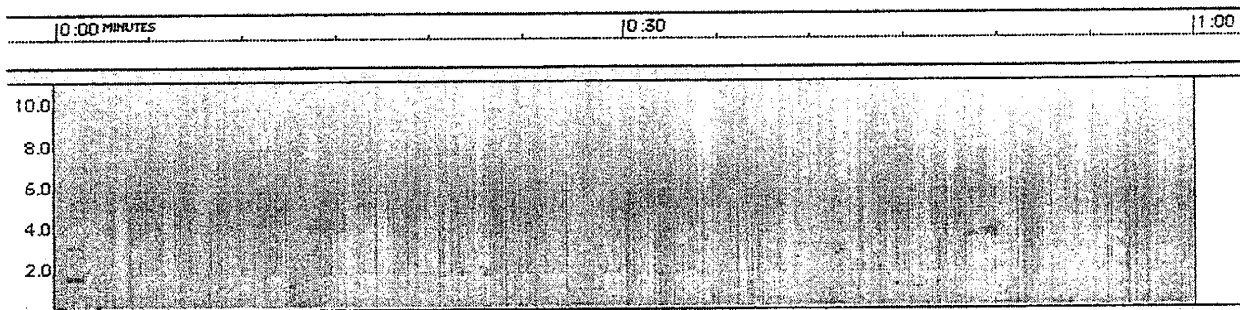
1200 UT (6 AM MDT)

Robert Bennett

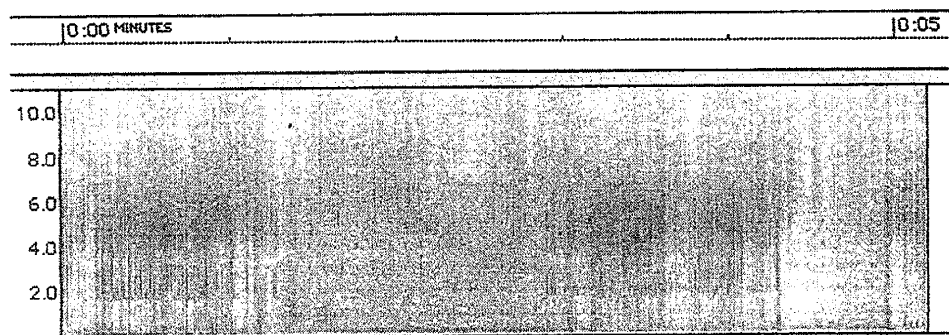
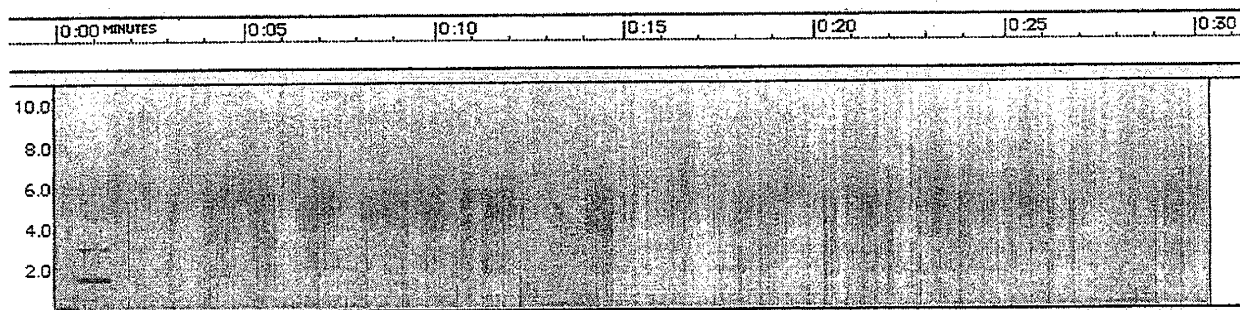
Las Cruces, NM



At 6 AM the sferics are still dense and so are the whistlers. LORAN is present.



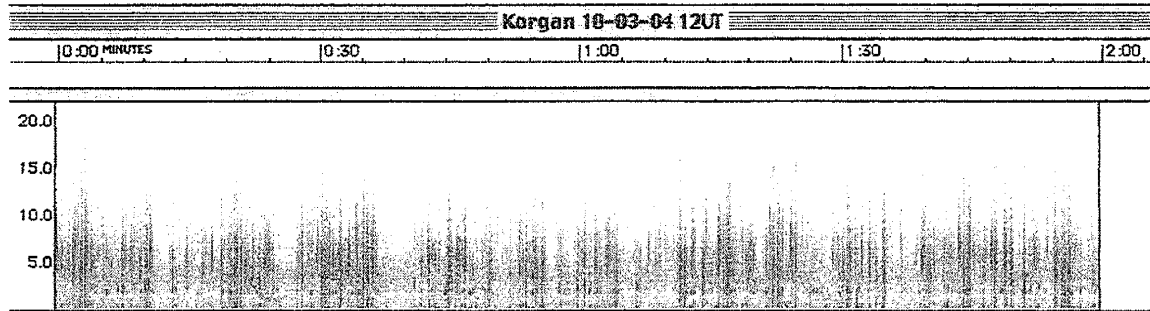
The horizontal dashes at the beginning are from the WWV tone and its harmonics.



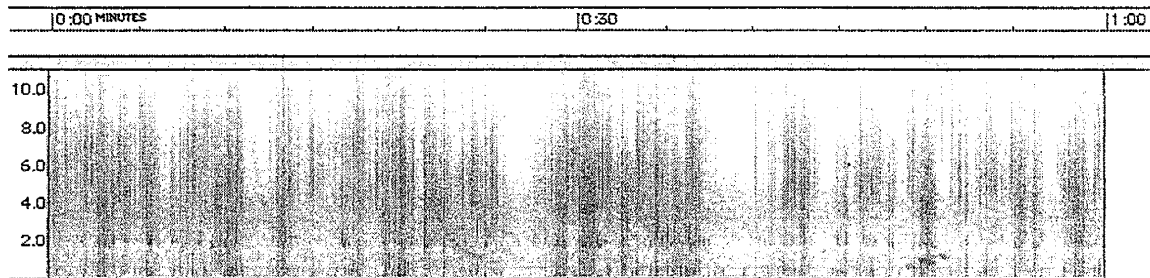
A whistler is seen at 12:01:13 UT. Tweaks in bursts appear as closely spaced vertical lines with the tweak "hook" at about 2 kHz.

Shawn Korgan

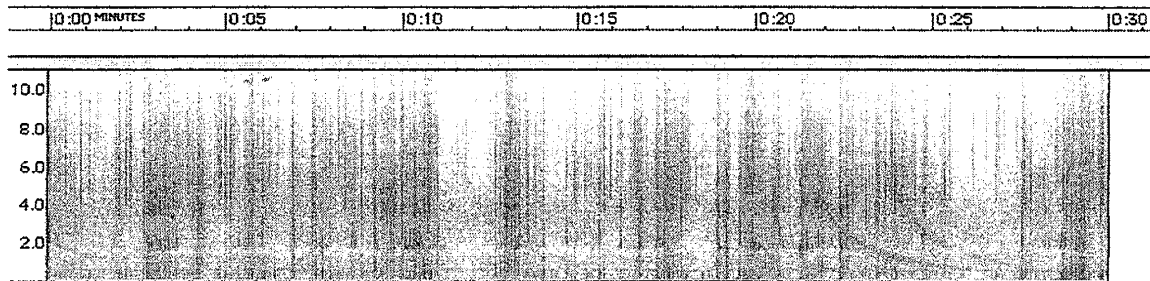
Gilcrest, CO



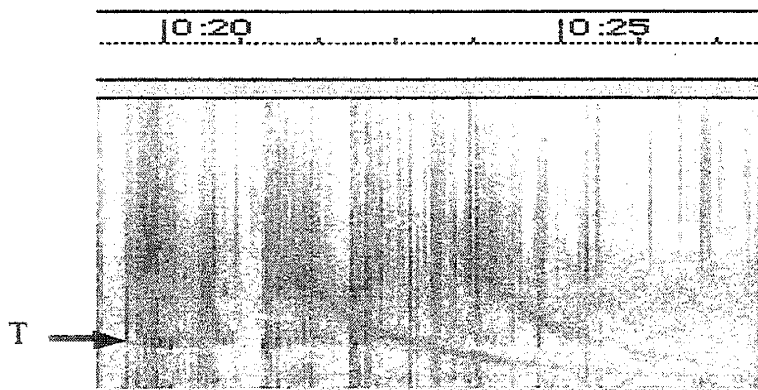
In Colorado, Shawn is getting even more whistlers with less sferic intensity in the background. The thunderstorm is well east and south of Shawn's location.



Individual whistlers are apparent in this one-minute spectrogram.

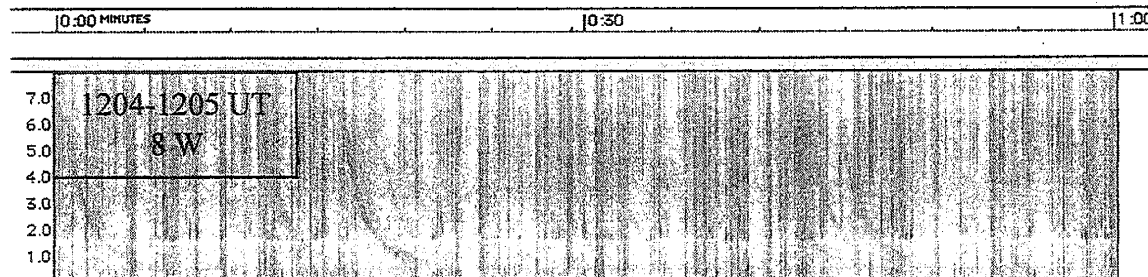
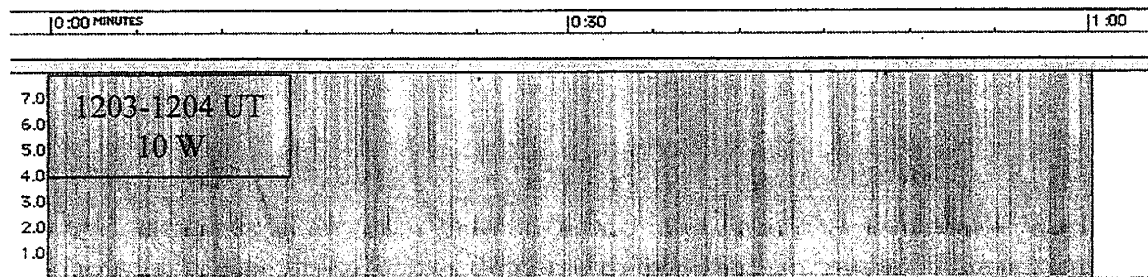
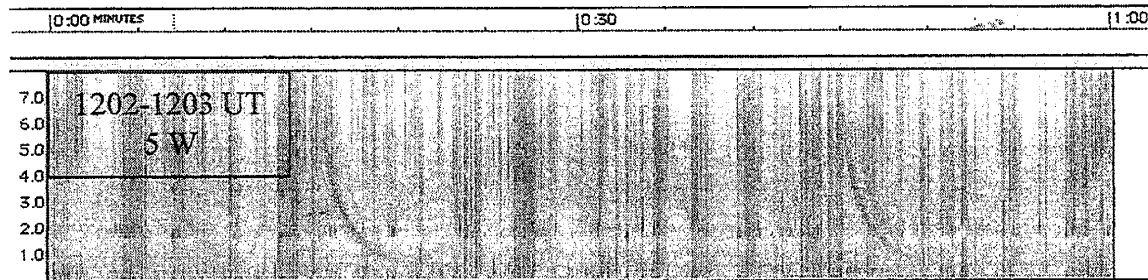
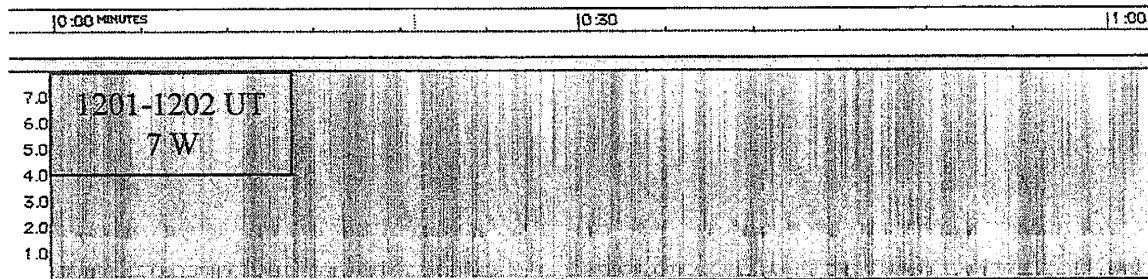
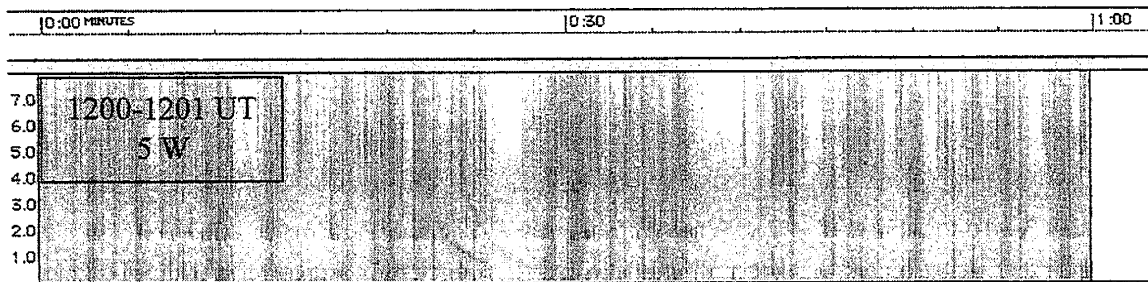


Individual tweeks with their hooks show up on this 30-second spectrogram.



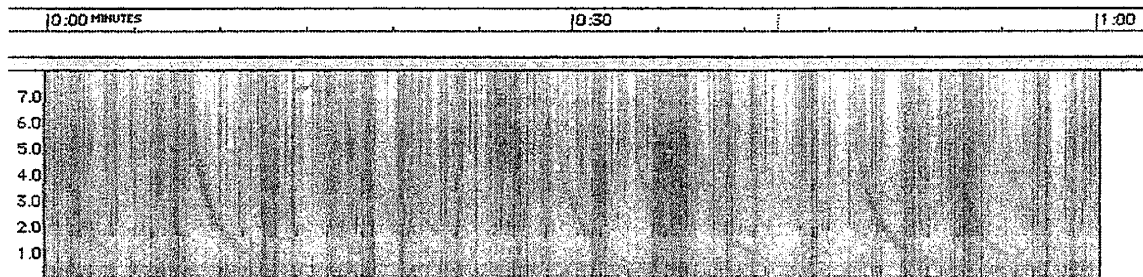
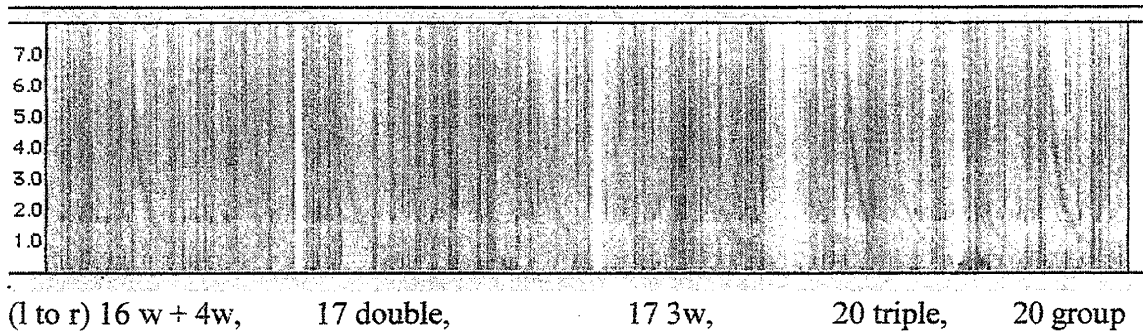
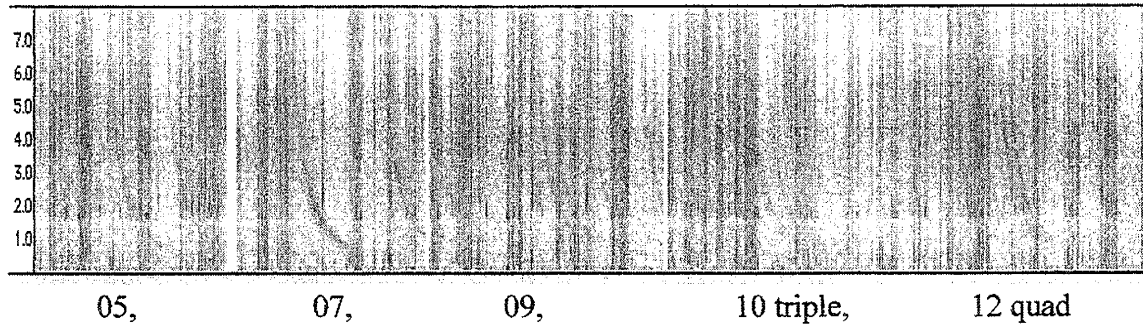
The whistlers shown at :20 - :25 seconds from above. The tweek hooks are shown by a T at about 2 kHz.

If a frequency range of 0-8 kHz is used, whistlers are very easy to spot and count. The following spectrograms show a minute-by-minute display from 1200UT to 1205UT. In the boxes, the time interval is shown and the number of strong whistlers is shown.

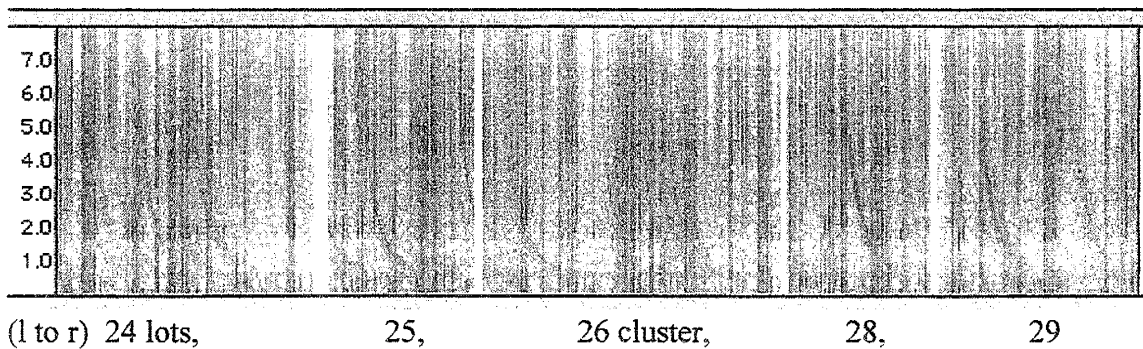


The following are spectrograms of whistlers that were captured by Shawn in the next 25 minutes.

Whistlers (l to r). Numbers indicate the minute.



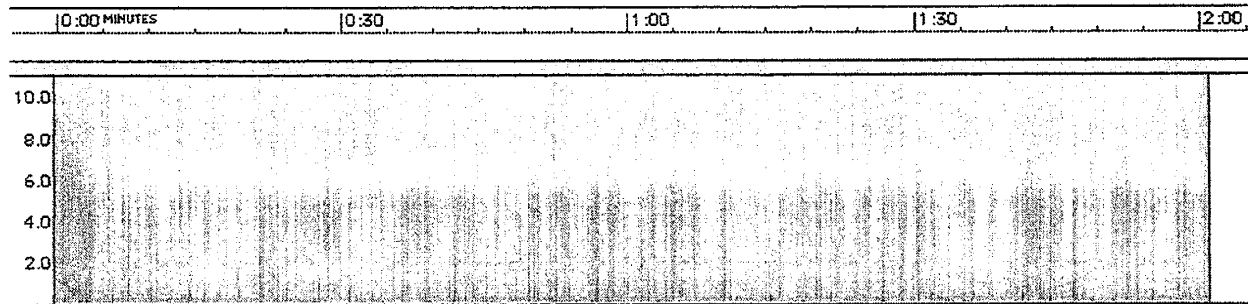
Minute 22: 12 W logged!



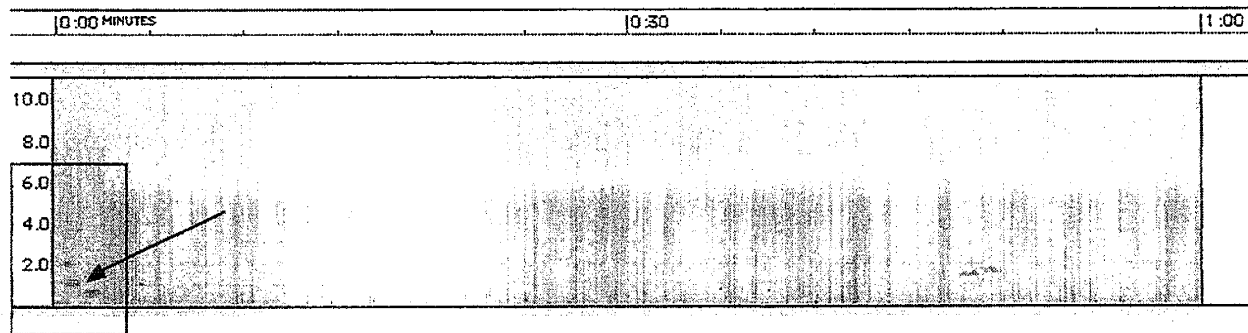
1300 UT (7 AM MDT)

Robert Bennett

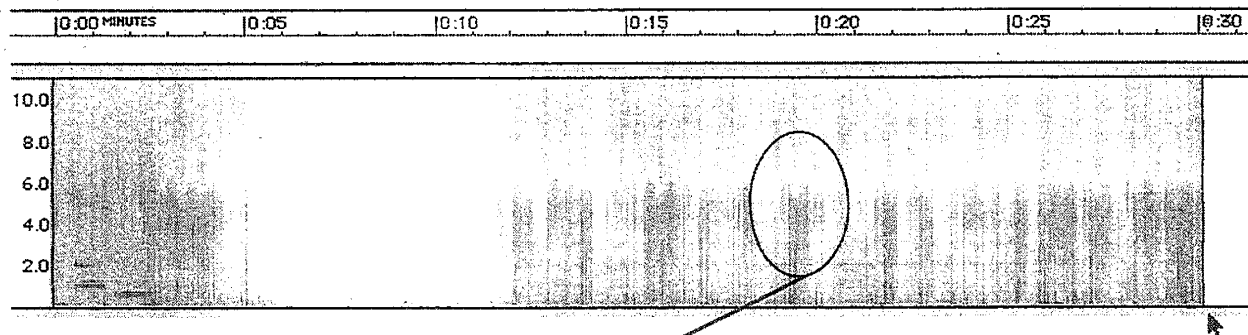
Las Cruces, NM



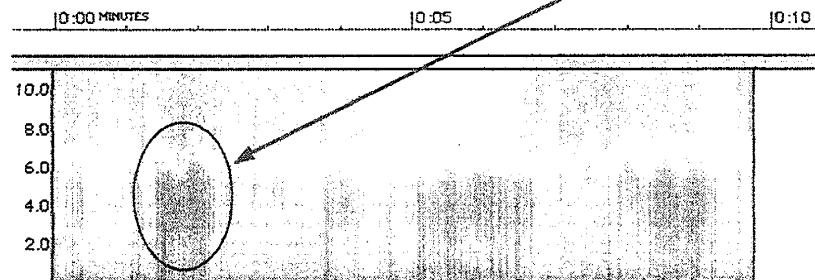
This session actually started at 1301 UT. Sferics still dense, whistlers getting fainter.



WWV tones at 1301 shown in frame. The arrow points to the 1 kHz minute tone.



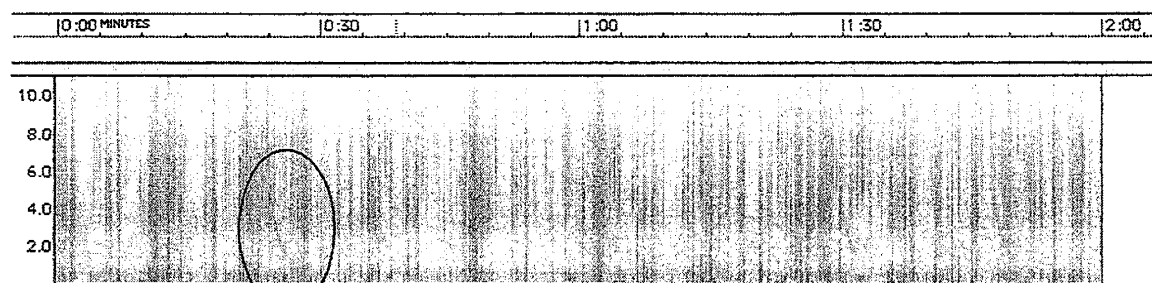
Note the rhythmic pattern in signal at about 6 kHz.



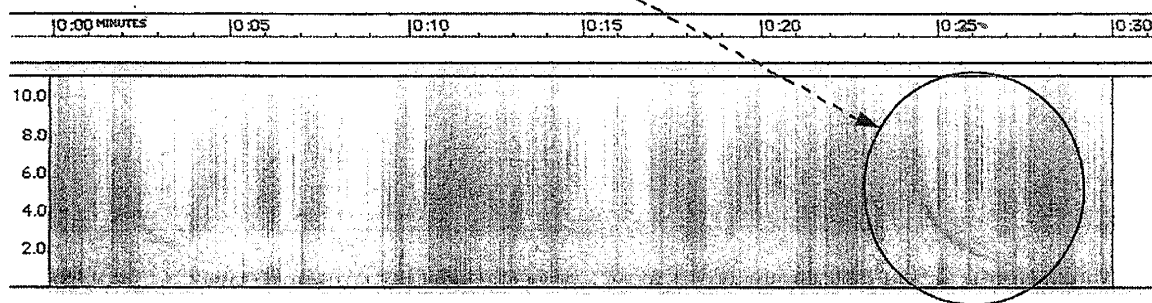
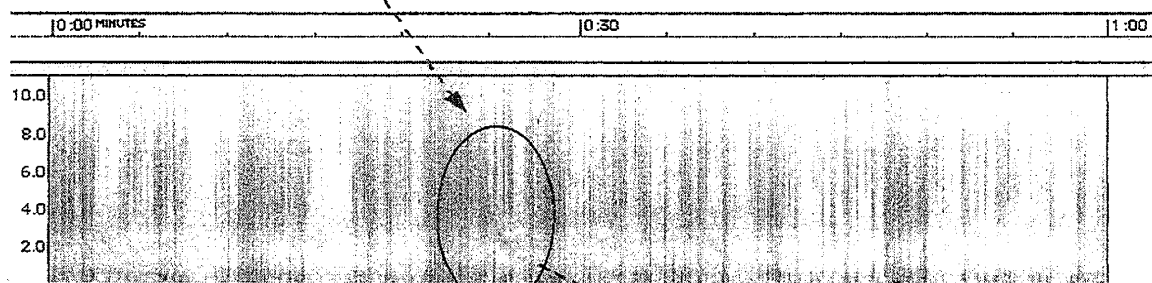
Whistler at 13:01:50 UT

Shawn Korgan

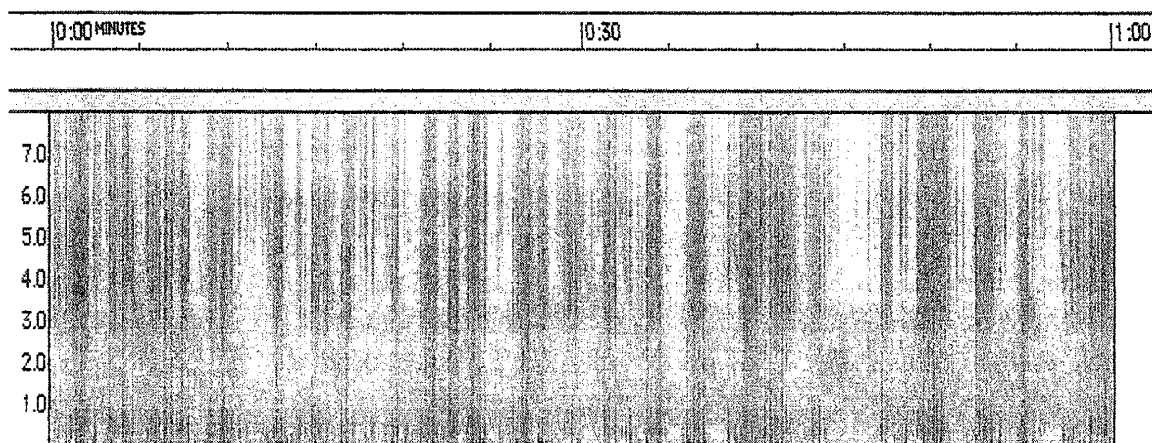
Gilcrest, CO



Strong sferics, but not as dense as found in New Mexico. Whistler storm peaking.



1328-1329

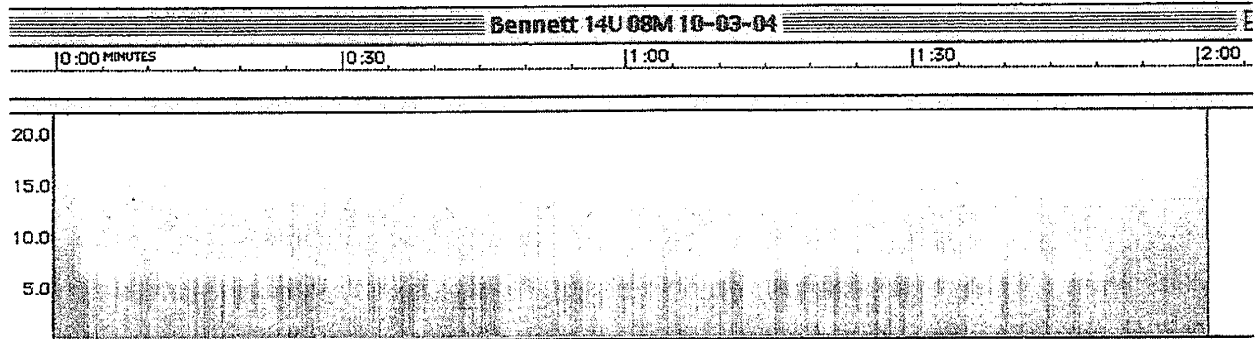


Hundreds of faint whistlers – a whistler shower (and chorus).

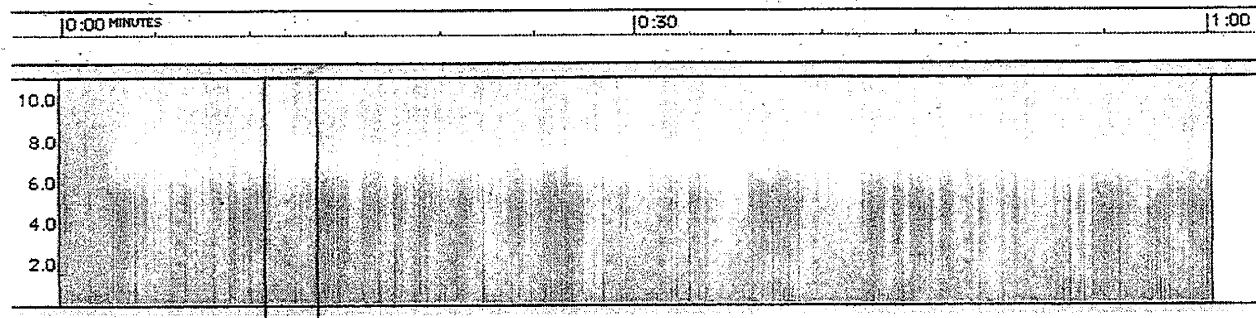
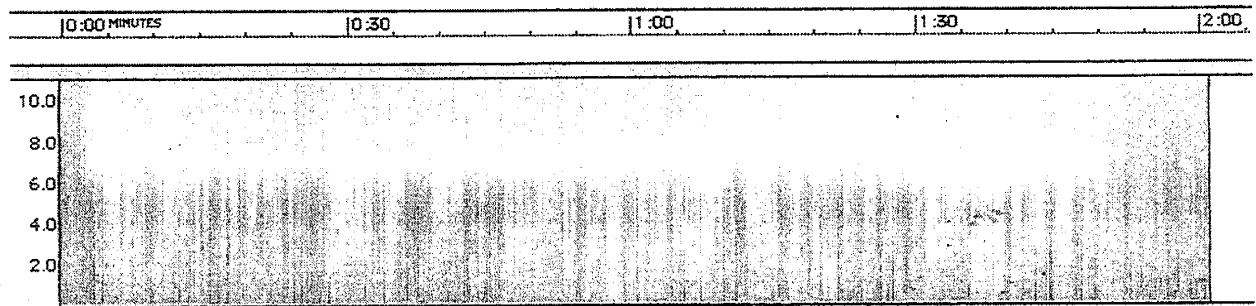
1400 UT (8 AM MDT)

Robert Bennett

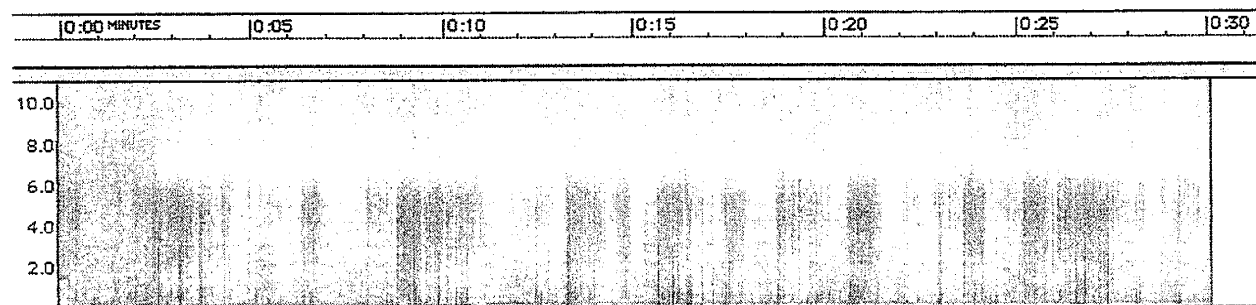
Las Cruces, NM



Whistlers decreasing in intensity (strength) and density (number per minute).

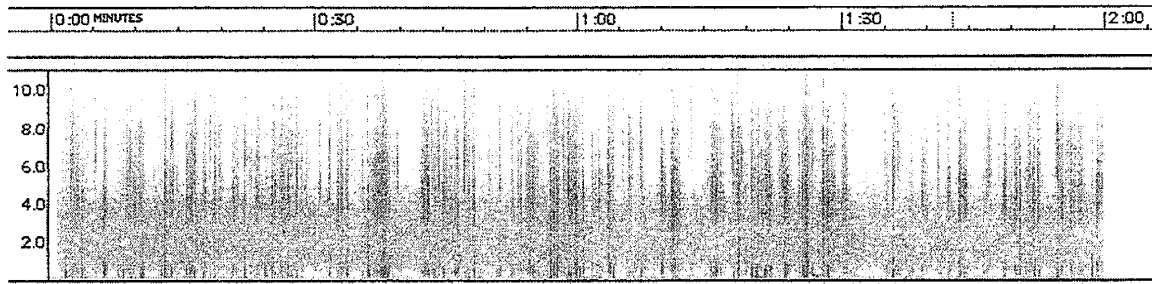


In the box is a vertical series of dashes from a LORAN transmitter. This sounds like a clicking sound on the audio.

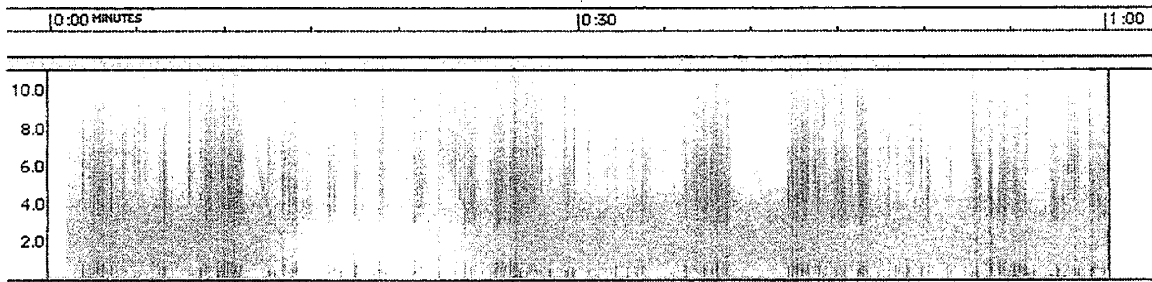


Shawn Korgan

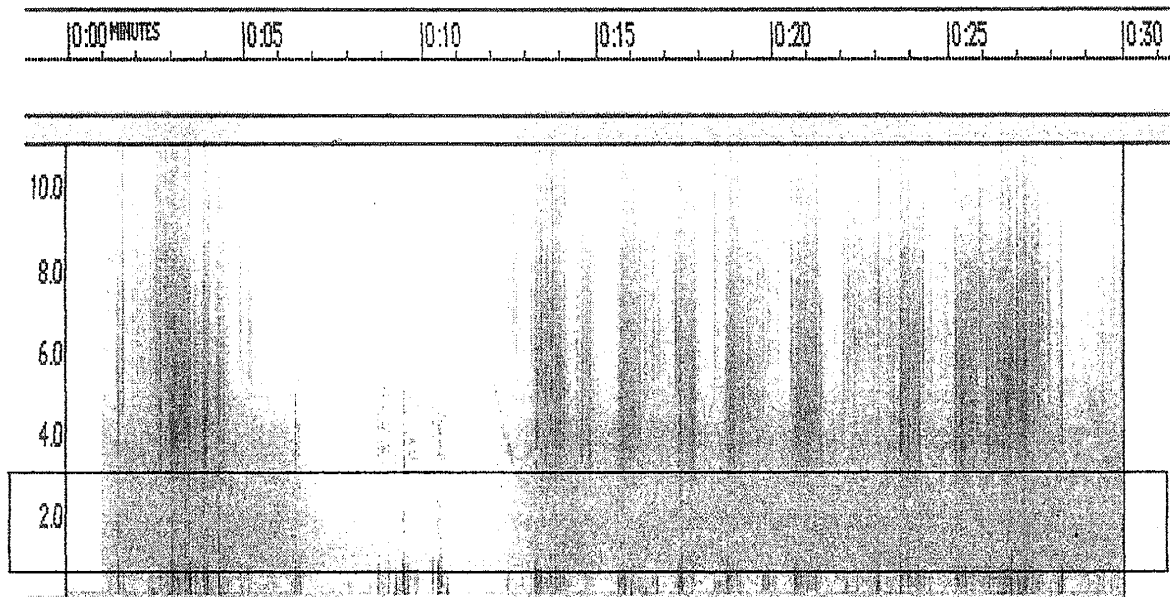
Gilcrest, CO



The whistler storm has subsided and a hiss band has formed. Strong whistlers are still observed.



One change in conditions is indicated by the absence of LORAN signals.

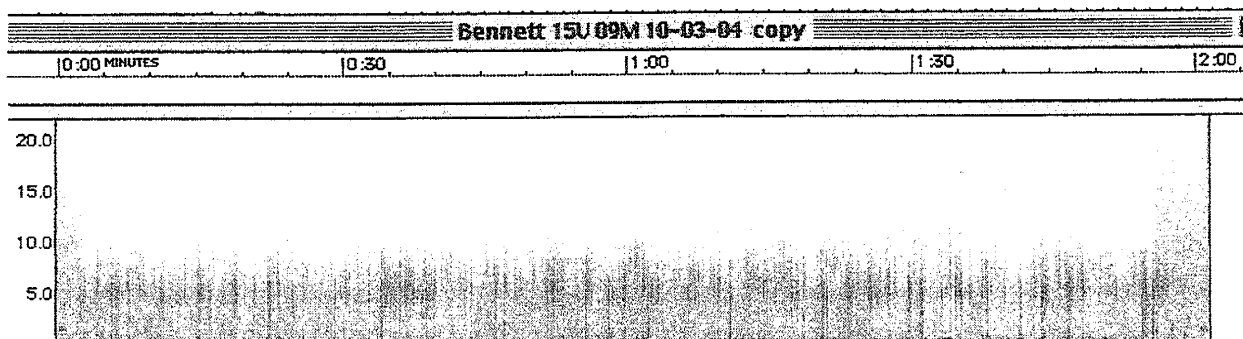


The hiss band is shown in the box.

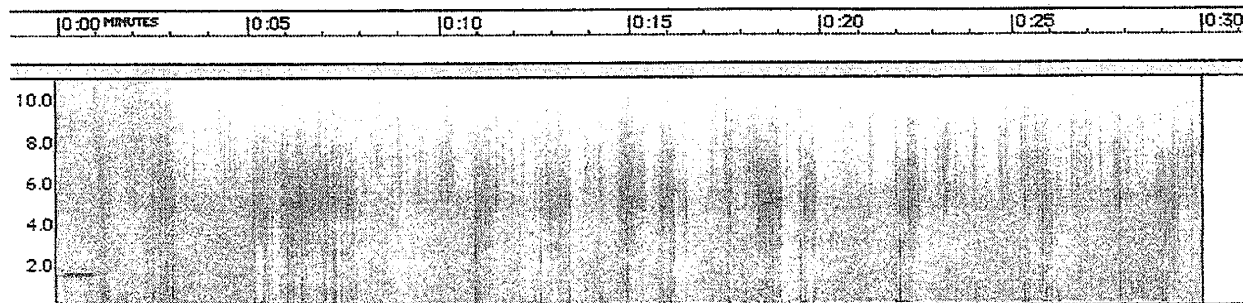
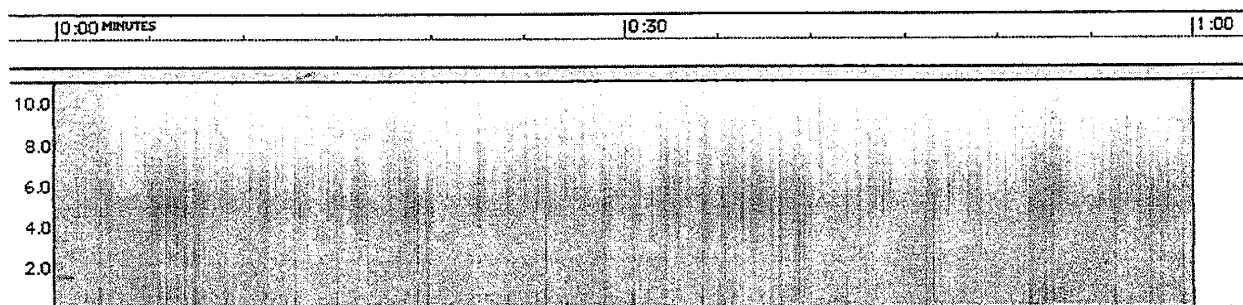
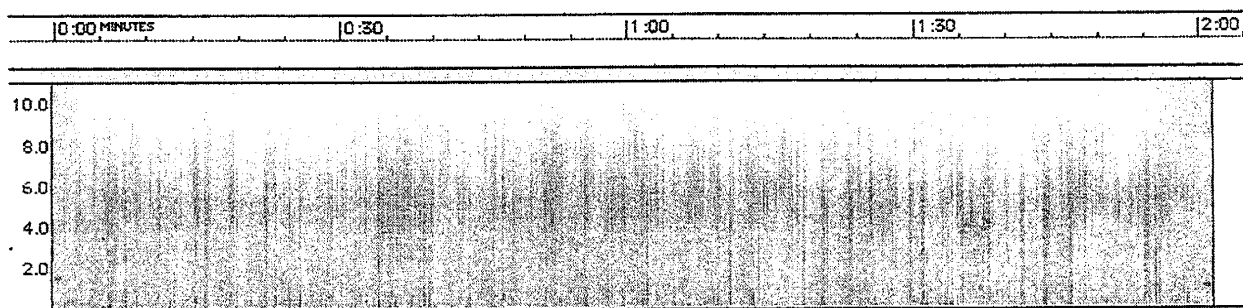
1400 UT (8 AM MDT)

Robert Bennett

Las Cruces, NM

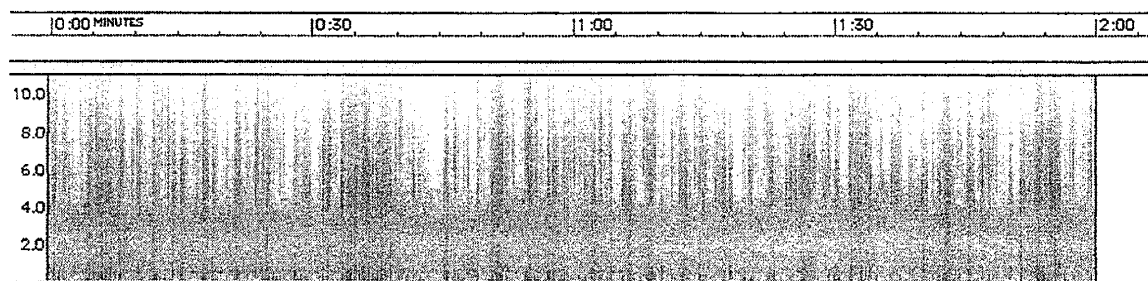


The last hour of observing in New Mexico shows a declining local thunderstorm.

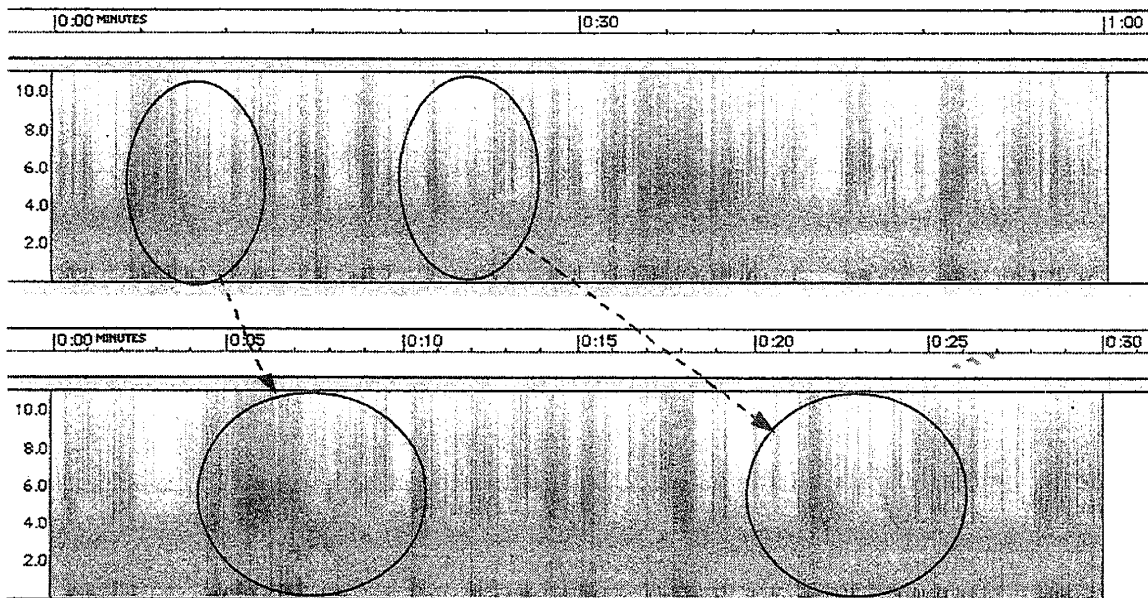


Shawn Korgan

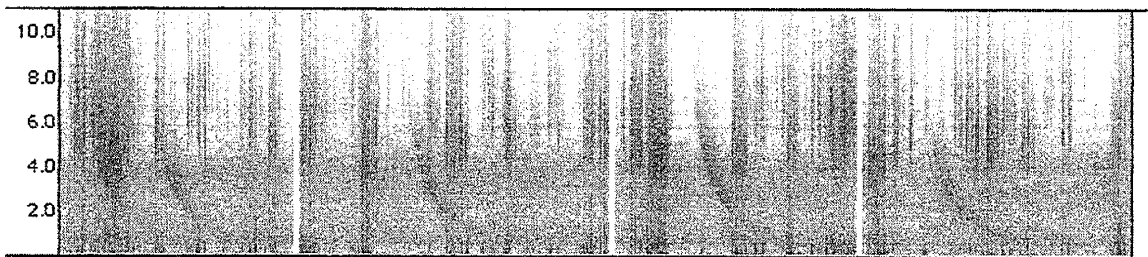
Gilcrest, CO



In Colorado, sferic density has not changed much. Strong whistlers pass through the hiss band.



We end this report with some “neat” whistlers logged by Shawn between 1512 UT and 1530 UT.



1512 UT,

1515 UT,

1519 UT,

1529 UT

Report on Field Observations 4/2003-11/2004

By Bill Pine
Ontario, California

Please refer to Pages 4-5 of the *Journal* for formats and procedures for Field Observations.

Returning to INSPIRE observations after a brief interval are Linden Lundback and Brian Cowan in Saskatchewan, CANADA. Linden wrote:

I am sending a CD with a couple of WAV files on it that represent Team I-2's most recent VLF observations.

We have been rather inactive the past year or so as I (Linden Lundback) have moved to a different part of the province and have been occupied with adjusting to a new job and location. Another reason was our deteriorating recording quality from the Radio Shack tape deck we used for observing. We have been looking for a good used Marantz or comparable deck for the past few years but haven't found one up here as yet. This session we tried direct recording to a laptop which seemed to work ok (after spending a few hours to get everything working to a acceptable level).

The data you will receive is two .wav files on a CD...it's set up as a music CD...don't know if that's ok. (*Editor's note: music files are fine.*) Let me know if this mode is not acceptable and I will try to resend the info. to your requirements.

It was gratifying to again participate in these observations and of course getting the direct computer recording to work. We both enjoy working with INSPIRE and Radio Jove and having the opportunity to participate in a small way with these two research areas.

One frustration in this session was that our borrowed computer didn't have a very good battery and it 'gave up the ghost' in the latter part of only our second observation. That resulted in us having to abandon observations after two sessions. We are now looking at a used laptop that we can dedicate to these and Radio Jove observations and build a power adapter to the car for longer session recording.

I will be mailing our data in a day or two.

Linden Lundback for Team I-2

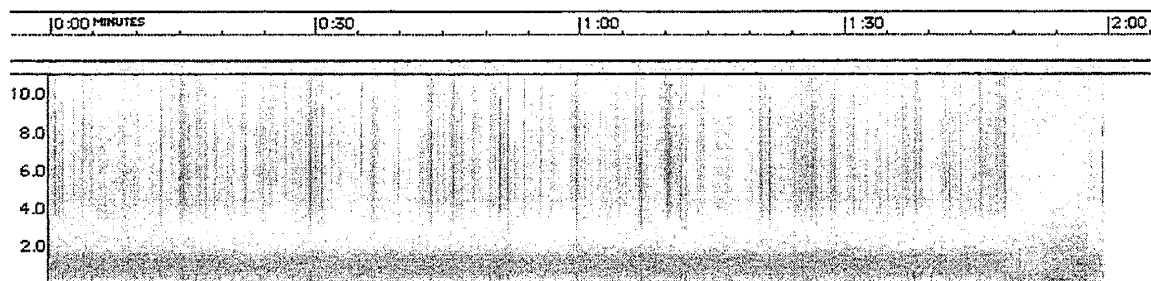
Linden Lundback and Brian Cowan

Watrous, Saskatchewan, CANADA

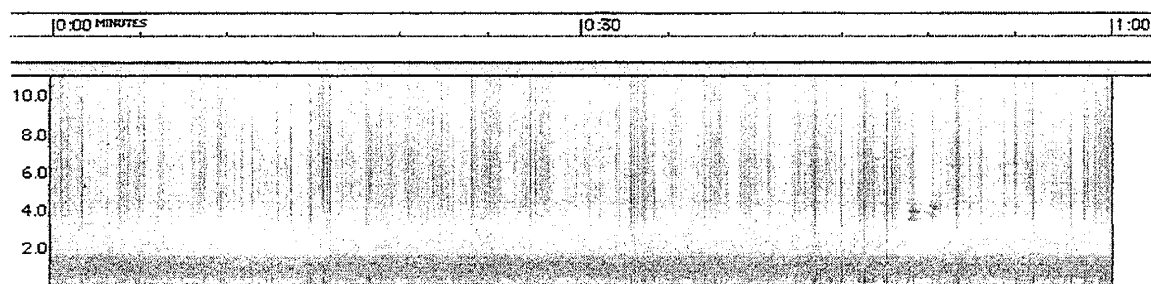
May 1, 2004

1238 UT

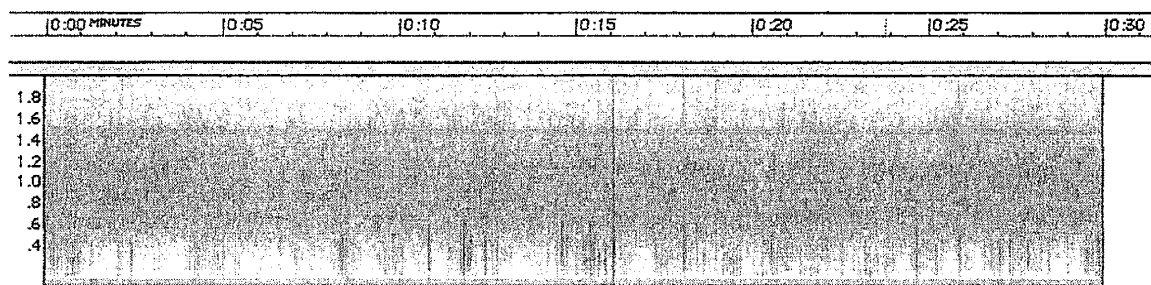
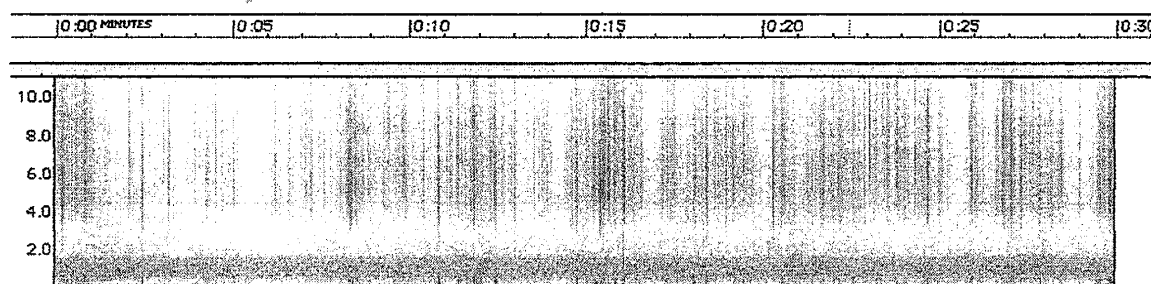
0638 Local



Strong sferics are present. The dark band below 2 kHz is chorus.

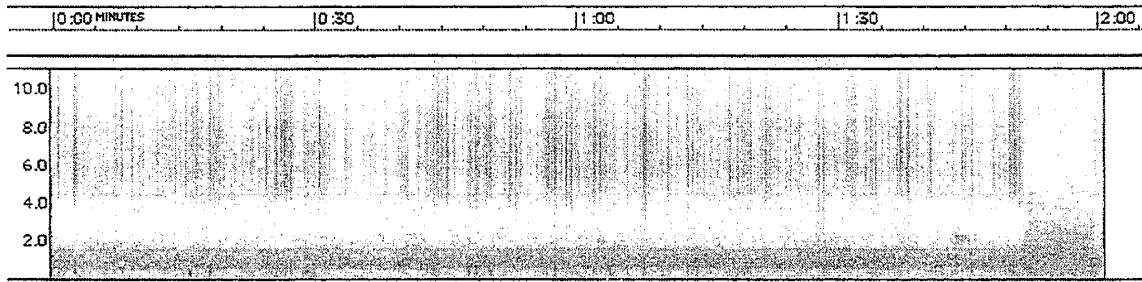


First minute.

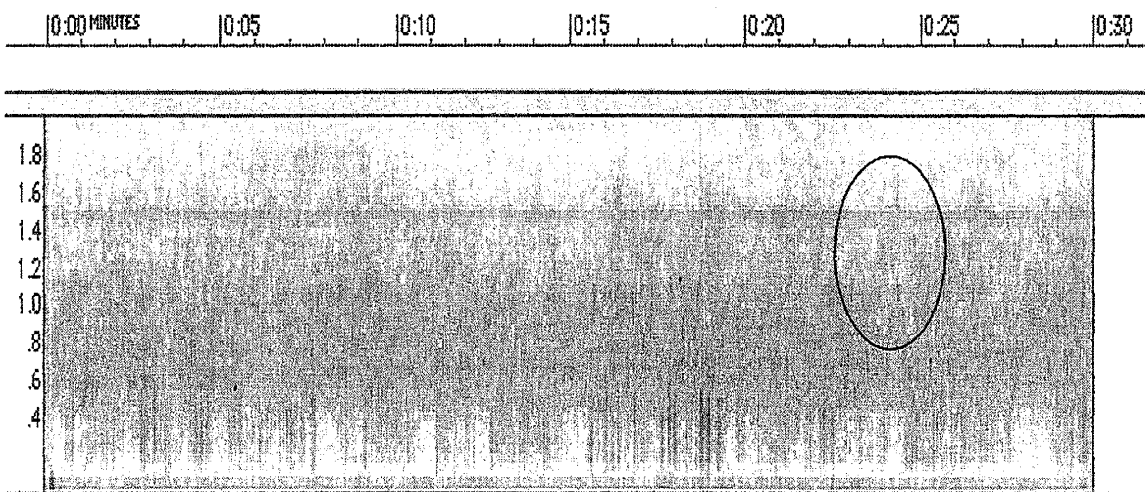
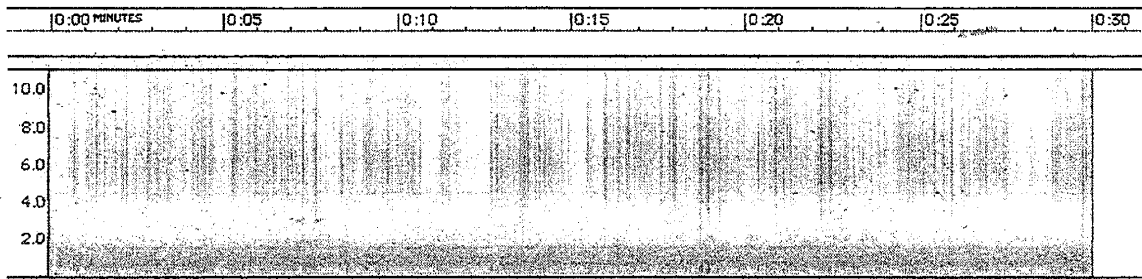
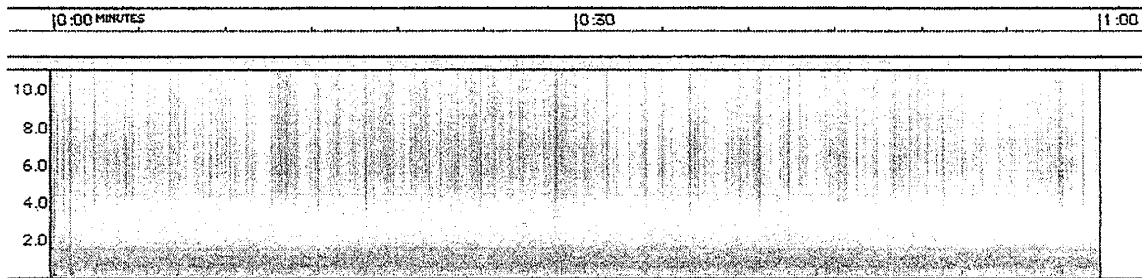


Using a 0-2 kHz frequency range, chorus can be examined.

May 1, 2004 1300 UT 0700 Local



Just 20 minutes later, chorus is stronger.



Chorus consists of rising tones (oval) that periodically appear above the low frequency noise.

Data Log Cover Sheet

(copy as needed)

INSPIRE Observer Team _____

Team Number: _____

Equipment: Receiver _____

Recorder _____

Antenna _____

WWV radio _____

Site description: _____

Longitude: _____° _____' W

Latitude: _____° _____' N

Personnel: _____

Team Leader address: Name _____

Street _____

City, State, Zip, Country _____

email: _____

Local Time to UT Conversion Table

EST + 5 = UT

EDT + 4 = UT

CST + 6 = UT

CDT + 5 = UT

MST + 7 = UT

MDT + 6 = UT

PST + 8 = UT

PDT + 7 = UT

(copy as needed)

Team Number: _____

Receiver _____

Tape Start Time (Local) _____

Local weather: _____

Code: M - Mark (WWV or Voice) S - sferics T - tweek W - whistler A - Alpha C - chorus
Sferic Density: D: ____ Scale of 1-5 (1 - Very Low, 3 - Medium, 5 - Very High)

[illegible]