

September 30th, 1953
Wailuku, Maui
Territory of Hawaii

U.S.A.
Office of Civil Defense, Honolulu, Hawaii
Attention: Mr. J. L. Pawsey

Dr. J. L. Pawsey
Radiophysics Laboratory
C. S. I. R. O.
Chippendale, N.S.W.
Australia

Dear Pawsey:

An idea has been going around in my mind for some time. Unfortunately, there are so many other things to do that it will not be possible for me to try the idea.

In general, I am interested in pushing the measurements of cosmic static down to as low frequencies as possible. The ionosphere will put a lower limit of a few megacycles upon conventional methods.

Some time ago Ratcliffe suggested that the attenuation of the extraordinary ray along the lines of the earth's magnetic field should be small. He has used this phenomenon to explain long wave whistlers. Apparently the same scheme can be used to bring long wave cosmic static from space thru the ionosphere. The phenomenon should work best at high latitudes where the earth's field is nearly vertical. It seems that any frequency below the gyro frequency will be satisfactory. Sagittarius is high over head in your country. This intense region of cosmic static should provide a good source for the test.

The main difficulty to be experienced is atmospheric. At high latitude they shouldn't be too bad. However some method will be needed to sort the cosmic static out from the atmospheric. Such can be done best by timing. The atmospheric will be of random occurrence or have a diurnal component locked to the sun; depending if of local origin or transmitted via the ionosphere. Cosmic static has a diurnal component locked to the sidereal day. Thus if one records total static and analyzes the results, it may be possible to find a component which gains about four minutes each mean solar day. If a year or more of continuous recordings are available it might be profitable to smooth them out and look for a component due to cosmic static.

You may be able to compute a best frequency, season or part of the solar activity cycle. In any case, your comments and suggestions will be greatly appreciated. Enclosed are a couple of snapshots of my installation here.

Best regards,

*with photo of hill & framework
taken about Sept 1952*

Grote Reber

(over)

