**Negative Correlation of Remote Viewing Performance with 0.025 – 0.1 Hz Geomagnetic Pulsations**

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**Introduction**

Ryan’s (2008) analysis of geomagnetic pulsation activity during ganzfeld and remote viewing trials suggested that activity in the 0.025 – 0.1 Hz band may inhibit ESP, whereas activity in the 0.2 – 0.5 Hz band may enhance ESP. The research reported here is the first prospective test of these findings.

**Remote Viewing Trials**

As higher frequency geomagnetic pulsations (*f* > 0.1 Hz) are geographically highly localised, we conducted remote viewing experiments (precognitive design) at Lancaster University, where a sensitive magnetometer is in continuous operation. Two studies were conducted; the first from April to May 2009 (reported by Subbotsky and Ryan, 2009), and the second from October to November 2009. Additional aims of the studies were to examine the effects of motivation and belief on remote viewing performance but the results of these analyses are not covered by this report.

Participants (students at Lancaster University) each completed one trial, and each of the two studies comprised 50 trials. Participants were randomly assigned to either a reward or no-reward group The motivation of participants in the reward group was manipulated by promising a reward of £80 (study 1) or £8 (study 2) to those who achieved a hit; this was in addition to a payment of £4 made to all participants for their time. Using the “Stimulus – Response” method described in May (2006), the participants attempted to describe a photograph that they would see in their near future.   In each trial the experimenter (E.S.) compared the participant’s drawings and written notes to five randomly selected photographs, assigning each a rating between 0 and 100 to indicate the degree of similarity. We used the database of target photographs described by May et al (1999) and May (2007). After ratings for all five photographs had been entered into the computer and saved to disk, the computer randomly selected one of the five photographs as the target which was then displayed to the participant. During the trials participants were seated and faced East, with the heading of approximately 90 degrees.

The no-reward condition in the first study achieved highly significant evidence of ESP (*p* = 0.0040 1‑tailed, *ES*i.e. *Z*/*N*1/2 = 0.53), but results for the three other study/conditions were at chance.

**Geomagnetic Field Measurements**

We used geomagnetic field measurements from the fluxgate magnetometer at Lancaster University, operated by SAMNET. The magnetometer has a sensitivity of 0.1 nT and a sampling frequency of one second. Following the method of Ryan (2008), the field measurements at the time of each trial were transformed into the frequency domain by fast Fourier transform (FFT).

**Hypotheses**

Based on the findings of Ryan (2008), the following hypotheses were framed: -

(1) Geomagnetic activity in band 3 (0.025 – 0.1 Hz) will correlate negatively with remote viewing performance.

(2) Geomagnetic activity in band 1 (0.2 – 0.5 Hz) will correlate positively with remote viewing performance.

**Solar Conditions during the Experiments**

Geomagnetic activity is caused by the interaction of plasma ejected from the Sun with the Earth’s magnetic field, therefore geomagnetic activity levels are linked with the circa. 11-year cycle of solar activity.   Solar, and thus geomagnetic, activity was at a low during the period of experimentation.

**Results**

The correlation of ratings assigned to the target with band 3 power is: *N* = 89; *rs* = -0.26, *p* = 0.0063 (1‑tailed) (11 trials excluded due to missing data), supporting the hypothesis that pulsations in this frequency band inhibit ESP. The negative correlation is homogenous across the two studies: -

Study 1: *N* = 48; *rs* = -0.23, *p* = 0.06 (1-tailed)

Study 2: *N* = 41; *rs* = -0.21, *p* = 0.09 (1-tailed)

Examining the frequency bands either side of band 3 it was found that for band 2 *rs* = -0.12 and for band 4 *rs* = -0.15. The differences between these values and the band 3 correlation coefficient are not significant but are nevertheless suggestive of a frequency specific effect, in line with the findings of Ryan (2008).

The correlation of target ratings with power in band 1 (0.2 – 0.5 Hz) was *rs* = -0.05, n.s., failing to support the hypothesis that this class of pulsation enhances ESP. However, provisional results of an assessment of the absolute level of band 1 activity during the period of experimentation suggest that the few trials conducted when band 1 activity exceeded the threshold identified by Ryan (2008) were also high band 3 trials, and therefore no ESP enhancement would be expected. Further work is required to establish this with certainty, the challenge here being accounting for differences in sensitivity between magnetometers at the upper frequency bands 1 and 2.

**References**

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