ANOMALOUS STRUCTURE IN GCP DATA: A FOCUS ON NEW YEAR'S EVE

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ABSTRACT

Continuous parallel sequences of random data have been accumulated in the Global Consciousness Project (GCP) for eight years as of August 2006, and we have made formal hypothesis tests regarding potential structure in the data associated with each New Year transition during that time. The GCP maintains a network of about 65 active random event generator (REG) devices around the world, each recording 200-bit trial sums at one per second over months and years, and reporting them over the Internet to a central server. We have made two types of prediction for New Year's, one that the mean score across REGs in the network will depart from expectation, and another that the variance across devices will be reduced near midnight. The GCP data are signal averaged across all time zones, and the period surrounding midnight is assessed for each year. The meanshift measure combined across all eight years shows a substantial decline, but it is not statistically significant. The variance measure has a more impressive outcome: Analyses for individual years show results conforming to the hypothesis in about three fourths of the cases, and for the eight years combined, the shape of the signal averaged cumulative deviation is striking. Permutation analysis shows that the prediction of reduced variance is supported with a *p*-value of 0.026. While it is prudent to keep alternative explanations in mind, these results are *prima facie* evidence of a large-scale interaction of human consciousness that can have effects in the physical world, similar to those found in intention-based laboratory mind-machine experiments. The project continues, with a focus on refining hypotheses and assessing a broader range of potential correlates.

INTRODUCTION

The Global Consciousness Project (GCP) was created to assess possible correlations between special events in the world and measures of structure in random data (Nelson, 2001). A network of random event generators (REGs) placed around the world produces data continuously and sends them via the Internet for archiving on a central server, creating a database of random trial scores in synchronized parallel sequences. Given this unrolling matrix of unpredictable numbers, the original goal of the project was to test a general hypothesis that the data would show non-random structure or patterns at times when major events draw attention and focus from large numbers of people.

The project is an extrapolation of REG-based laboratory and field experiments which have shown effects that are taken as evidence of interactions of consciousness with physical systems. In the laboratory, the REG serves as a target of intentions to produce high or low outcomes relative to expectation. The results over several decades of controlled research show a small but significant positive correlation of outcome with the assigned intentions (Jahn, et al., 1997; Radin & Nelson, 1989). The field experiments use the same technology in non-intentional applications, collecting data in a variety of situations with groups of people. These "Field REG" experiments assess the character of REG data collected during periods of time when the group interactions are judged to be coherent or resonant. Data collected in such situations have consistently shown increased variance (Nelson, et al., 1996, 1998) indicating that even without explicit intentions, changes in the behavior of REG devices may be correlated with particular states of human consciousness.

The GCP is a global-scale extension of these experiments, embodied in a world-spanning network of REG devices. The nodes in the network are referred to as "eggs". Each egg consists of a physical REG and custom software to sample the output, create 200-bit trials at 1 Hz, and send the data over the Internet to the GCP server in Princeton, NJ. For the formal GCP experiment, the measures used and the hypotheses we pose are based on the laboratory and field research with REGs. We predict changes associated with operationally defined special states of "global consciousness". In practice this is implemented by specifying the beginning and end of a period of time associated with a major global event, along with the statistical procedures to be used for the hypothesis test. This design is replicated in a series of formally designated events, and the composite outcome of the accumulated trials is taken as the bottom line test of the general hypothesis.

Before we started collecting data in the newly established network in August 1998, we thought about what kinds of events bring people together in a widespread, shared focus of thought and emotion. An obvious candidate was the yearly celebration of New Year's. The transition from the old to the new is a focus point all around the world. Of course there are important "New Year" celebrations on different dates, the Chinese New Year, the Persian New Year, and various ceremonies to welcome spring, but the main one is December 31 going into January 1st. Even in parts of the world where there is another cultural New Year, much attention is paid to the midnight transition celebrated in New York's Times Square, in London, in Hong Kong, in Perth – practically everywhere there are people. It is a natural because one calendar is used everywhere, and because New Year's Eve is a grand party the world over.

In any case, as midnight approaches on December 31st, an unusually large proportion of humanity merges in a common engagement. Individualized interests and expectations are put on hold, replaced by a synchronized dance of participation. The same kind of widespread engagement may also develop when a terrible event occurs, especially if it is an unexpected, surprising, awful thing such as the terrorist attacks on September 11 2001 (Nelson, 2002; Nelson, et al. 2002). New Year's isn't like that, of course. On the contrary, it is anticipated, prepared for, even traditional. It is almost like the rituals of religious practice, though simpler and easier to share: just focused attention to a moment with no intrinsic importance or any deep meaning to distract us; an unusually relaxed, shared moment in time.

Given all that, New Year's is an ideal opportunity to consider collective consciousness in a relatively pure form. Brief and precisely focused, the moment draws widespread attention, and because there are few competing distractions, it is an unusually potent shared moment. Afterward we go back to the ordinary world, separating from each other and from the collaborative moment. This defines in operational terms what we call a "global event" which constitutes or produces a special state of communal consciousness that may register an effect on random event generators. The general hypothesis of the GCP is that we may find changes in the swath of REG data associated with such moments. That is, we hypothesize that an unusual state of relatively coherent, shared consciousness will produce a correlated signal in the GCP data.

Finally, we note that while we use the term "global consciousness", we do not presume that the anomalous effects are caused by a world-scale mind. Nor do we wish to claim that consciousness is necessarily the source of the effects. The GCP is empirical in nature, and the analyses we use address correlations. Much more work will need to be done to establish explanations or identify mechanisms.

METHODS

How the hypothesis is tested

What does it look like if we attempt to capture a signal in the sea of informational noise our minds create in the world? If we really do share emotions and thoughts, we might expect our common focus to produce a corresponding focus in a “field of consciousness” covering the earth with a sparkling, scattered layer of thought and feeling. Though they are normally random or unstructured relative to each other, our mental processes may sometimes resonate and become synchronized. Think of those mental sparkles as notes in all registers and rhythms, uncoordinated most of the time because there is no score or conductor. But when there is something special, a shock or surprise, a ritual or a celebration, then we might expect the sparkling to develop ripples and waves that put some structure into the chaos. Thinking in terms of sound, we can imagine the random tunings of an orchestra changing to music at the rap of the conductor's baton. To see whether there is an effect of focused consciousness on our data, we take the midnight transition to the New Year as a stimulus creating a coherent signal in an otherwise noisy background. Two independent calculations are made on the data recorded during the period centered on midnight in each time zone.

The Meanshift (netvar)

The first of our two pre-specified analyses for New Years looks at slight changes in the average score across eggs for each second. We calculate a *Z*-score for each egg, giving a normalized deviation from the expected score of 100. We then make a Stouffer *Z*, summing algebraically across all the eggs and normalizing by root *N*, resulting in a composite *Z*-score for each second. Next, the Stouffer *Z*-scores are squared to give a Chisquare distributed quantity, and we plot the cumulative deviation of the Chisquares accumulated over the specified period from the expected value.

This complicated process is designed to represent any tendency for the eggs to show correlated deviations. It is responsive to unusually large and unusually small scores, but primarily to consistency of behavior or correlation among the eggs. The measure is called netvar since it represents variance in the whole network. The graphs in the results section show for each New Year the accumulating history of deviations in the netvar over the 10-minute period around midnight, signal averaged across time zones. The terminal value in each case corresponds to the test of significance. For historical reasons, based on the positive deviations shown in the PEAR FieldREG experiments, (Nelson, et al., 1996) the formal prediction for the GCP events originally specified a positive deviation of the cumulative Chisquare from expectation, although it is arguable that a two-tailed prediction would be appropriate.

The Variance (devvar)

In the second analysis we picture the result by computing the sample variance (device variance) among the eggs. This measure is called devvar, and the calculation is made for each second during the hour surrounding midnight in each time zone. We then make a composite by signal averaging the resulting sequences across all time zones, finally normalizing the data as approximate *Z*-scores. This gives an hour-long sequence of 3600 points, centered on midnight, representing all the eggs and all time zones around the world (there are 37 zones including those with half-hour offsets).

The composite variance measure in this sequence is too noisy to reveal any structure, but when smoothed by a moving average, momentary tendencies and persisting trends can be seen. We use a 4-minute smoothing window, so each point in the final plot is the average of 240 seconds centered on that point. The graphical displays use only the central half hour surrounding midnight, which simplifies the picture by excluding overlaps with the half-hour offset zones.

Signal Averaging

The analyses of the data for each New Year's Eve are intended to identify structure. The basic notion is that as the New Year moment goes from time zone to time zone around the world, there will be subtle but detectable changes in the networked egg data. To visualize this we make a composite by averaging the period surrounding midnight across all time zones. We use the standard signal processing tactic called epoch or signal averaging to reveal any faint patterns or structure associated with the special moment of celebration around the world as the old year ends and the new begins. Signal averaging is a technique commonly employed in the measurement of weak but repetitive signals. Successive data records from such a signal with a well-defined trigger source (the stroke of midnight in this case) are summed to calculate one averaged signal. The technique exploits the fact that the signal, if present, is coherently summed. By contrast, any source of noise that is incoherent with respect to the trigger signal will, be washed out, i.e., will diminish in amplitude with successive averaging operations. "Signal averaging can be used to reveal signals that are buried in background noise and to increase signal-to-noise ratios from below unity to more acceptable levels" (Applications Weekly, 1998). An averaged data record, $y_{AVG}[i]$, is derived from *navgs* separate data records, $y_j[i]$, in the following manner:

$$y_{AVG}[i] = \frac{1}{navgs} \sum_{j=1}^{navgs} y_j[i] \qquad 0 \le i < npts$$

Since it is applied to all averaged points, division by *navgs* is immaterial and does not change the shape of the averaged signal. Consequently, this operation is typically ignored. Figure 1 shows a simplified example, displaying the original traces and the combined data from several time zones. This is a selected set of ten populated zones chosen to demonstrate the clarifying effect of signal averaging.

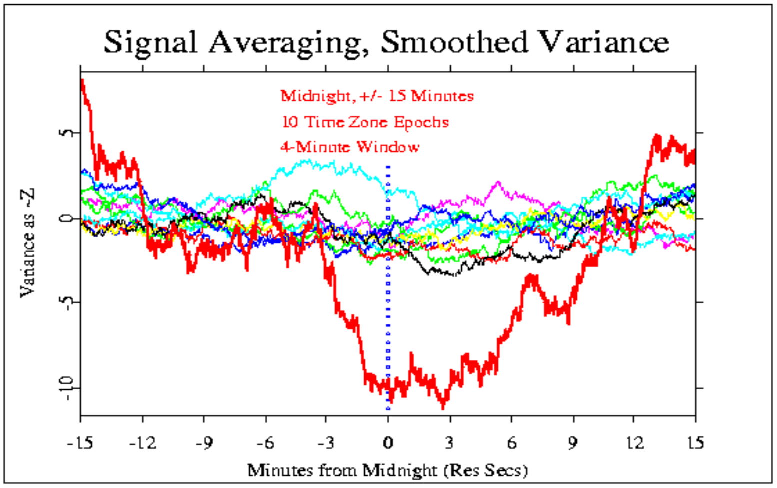

Fig 1 The heavy trace represents the signal average (sum) of ten 30-minute epochs centered on midnight, Dec 31, 1998 to Jan 1 1999. Each of the lighter traces is from one time zone, e.g., GMT or PST, selected to be one where the New Year is celebrated by large numbers of people.

Robust statistics

Computing a valid statistic for the meanshift analysis is simple: the terminal value of the cumulative deviation is compared with the appropriate Chisquare distribution, yielding a probability against chance.

The variance analysis is more complicated because the pre-specified hypothesis looks for both a deviation and a location, and it addresses smoothed rather than raw data. The figures in the results section (right panel) show the smoothed variance data for the New Year transition at midnight, ± 15 minutes. We use a random permutation analysis to find out how unusual the apparent structure in the data may be. We count the number of times a minimum of greater magnitude (depth) appears in 10,000 iterations, and count how many times the random permutations show a minimum point closer to midnight. The combination of these measures of magnitude and proximity gives an estimate of how likely it is that the apparent structure in the data is just a chance fluctuation. To create an appropriate comparison statistic, we combine the two into a single measure, and use permutation analysis to determine the probability of that measure against its null-hypothesis distribution. To test the hypothesis that there will be a reduction in variance and that it will occur near midnight, a logical candidate for a combined measure is $VT = a*Vmin \times b*dT$, where *Vmin* is the variance at minimum, *dT* is the absolute time interval from midnight, and *a* and *b* are pragmatically chosen coefficients to give both components roughly equal weight, that is, to have their respective variations contributing about equally to the variability of *VT*. Alternatively, we can use a sum rather than multiplication of the two components, but it turns out that the two approaches give similar results with suitably chosen coefficients. Either method allows us to establish the distribution of *VT* over a large number of data permutations. The probability of the original *VT* can then be calculated relative to this distribution.

In our application, *VT = a*Vmin × b*dT* becomes $VT_i = 1 \div (1 - V_i) \times abs(T_i)$ in each permutation, to compare with the original data value, $VT_0 = 1 \div (1 - V_0) \times abs(T_0)$, which is expected to be large if the minimum is deep and close to midnight. The central half hour, midnight ± 15 minutes was used for the calculations.

RESULTS

The following figures show the netvar analysis on the left and the devvar analysis on the right. The former tests the prediction that the eggs will tend to produce relatively large and correlated deviations during the 10-minute period centered on midnight. The latter tests our prediction that as midnight approaches, the variability of the data across the eggs will decrease, reaching a minimum near midnight, then return to normal. The two measures are almost completely independent even though they are based on the same raw data.

1998-1999

The netvar measure is essentially flat ($p = 0.591$). It does not conform to the a priori prediction of a positive cumulative deviation. In the devvar measure (which is a post facto analysis for this year) the hypothesis of decreased variance near midnight is supported. The permutation analysis shows a deeper minimum only infrequently ($p = 0.064$), and the minimum was closer to midnight in about 4% of the random permutations ($p = 0.035$). The combination of magnitude and proximity in the *VT* statistic for 1998-1999 gives a probability of 0.023.

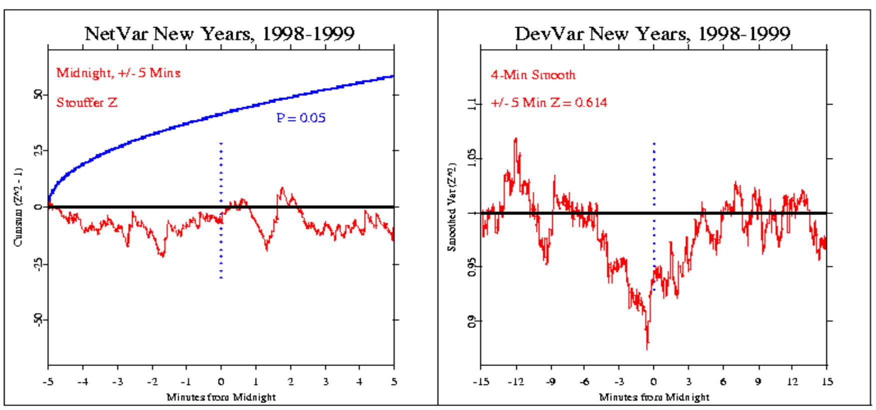

Fig. 2 New Year transition, 1998 to 1999. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight.

1999-2000

For the much anticipated "Y2K", the netvar measure is again quite flat; it certainly does not show the predicted positive trend (p=0.467). This was the first year for which an a priori prediction for variance reduction was made, by Dean Radin. The analysis method was not prespecified, however, so the current procedure, which was developed at that time, is applied post facto for 1999-2000. It is fully a priori in subsequent years. The result does indeed show a drop in variance near midnight. The minimum reached by the smoothed variance was exceeded by only about 6% of the permutations (*p* = 0.065). About 13% of the cases were closer to midnight in the random permutations (*p* = 0.130). The combination of magnitude and proximity yields a robust *VT* statistic for 1999-2000 with a probability of 0.090.

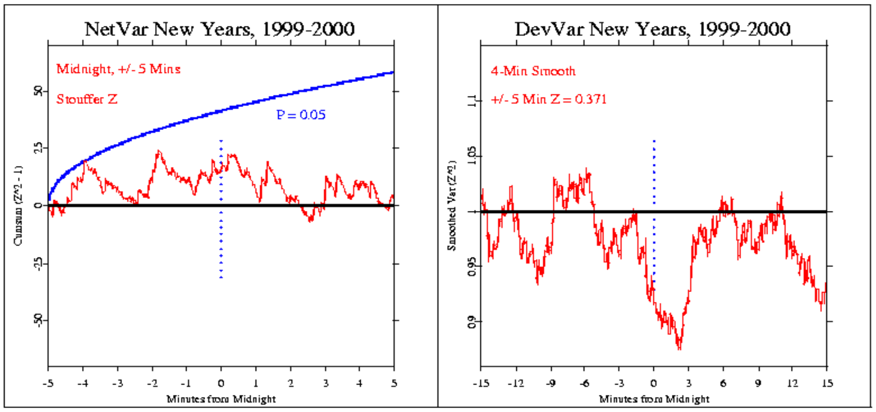

Fig. 3 New Year transition, 1999 to 2000. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight.

2000-2001

The New Year transition from 2000 to 2001 was not auspicious for the hypothesis. The netvar analysis showed a strong, persistent trend opposite to the prediction, with a terminal probability of 0.957. The devvar showed only a modest reduction around midnight. The deepest minimum reached by the smoothed variance was exceeded about a third of the time (*p* = 0.352), but it is fairly close to midnight, with 16% of the random permutations closer (*p* = 0.164). The combination of magnitude and proximity yields a *VT* statistic for 2000-2001 with a probability of 0.151.

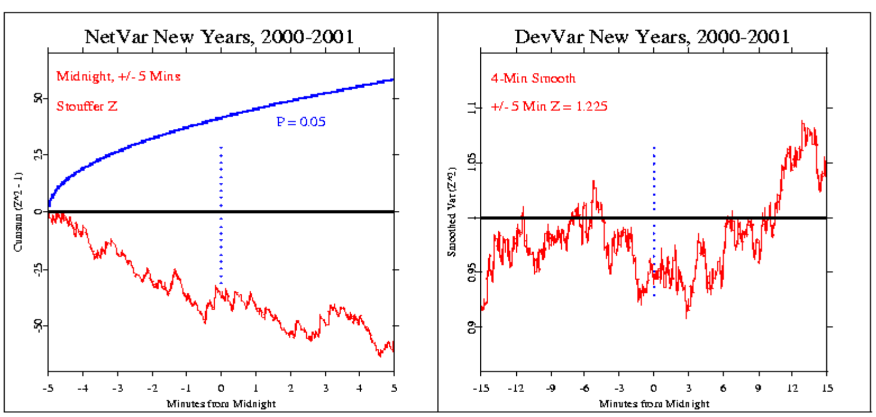

Fig. 4 New Year transition, 2000 to 2001. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight

2001-2002

For this year, the netvar does show a substantial positive trend, with probability 0.082. The devvar measure appears to match the prediction of reduced variance around midnight. However, appearances deceive somewhat, and the permutation analysis shows that the deepest minimum reached by the smoothed variance was exceeded more than 70% of the time ($p = 0.719$). On the other hand, the minimum was fairly proximate to midnight with about 16% of the permutations closer ($p = 0.164$). The combination of magnitude and proximity yields a *VT* statistic for 2001-2002 with probability 0.204.

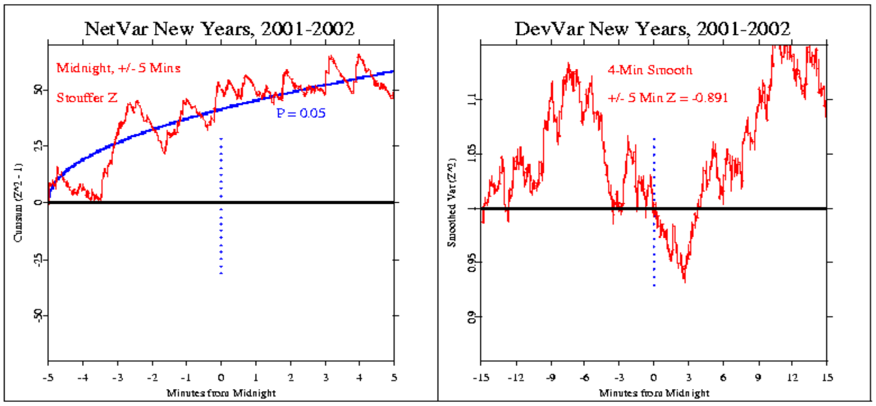

Fig. 5 New Year transition, 2001 to 2002. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight

2002-2003

The netvar measure was again strongly opposite to the prediction, with a negative trend through most of the 10 minute period. The terminal value corresponds to a probability of 0.934. In the device variance analysis, the result conforms well to the prediction. The deepest minimum reached by the smoothed devvar was exceeded about 1% of the time ($p = 0.010$), and it was very close to midnight, with only 6% of the random permutations being closer ($p = 0.063$). The combination of magnitude and proximity yields a *VT* statistic for 2002-2003 with probability 0.035.

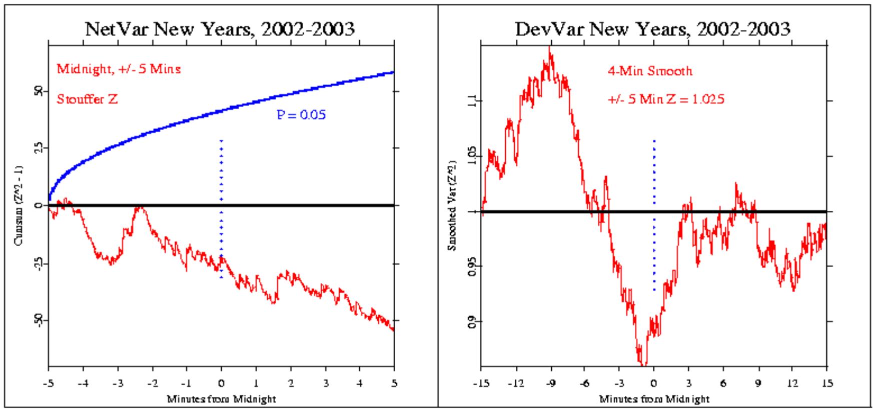

Fig. 6 New Year transition, 2002 to 2003. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight.

2003-2004

The netvar measure was mildly negative for about 5 minutes, and then mildly positive, with essentially no overall deviation. The terminal value corresponds to a probability of 0.522. The devvar analysis exhibits no pattern corresponding to the prediction. The deepest minimum reached by the smoothed variance was exceeded about a third of the time (p = 0.324), but it was so far from midnight that 97% of the random permutations were closer (p = 0.974). The combination of magnitude and proximity yields a *VT* statistic with probability 0.777.

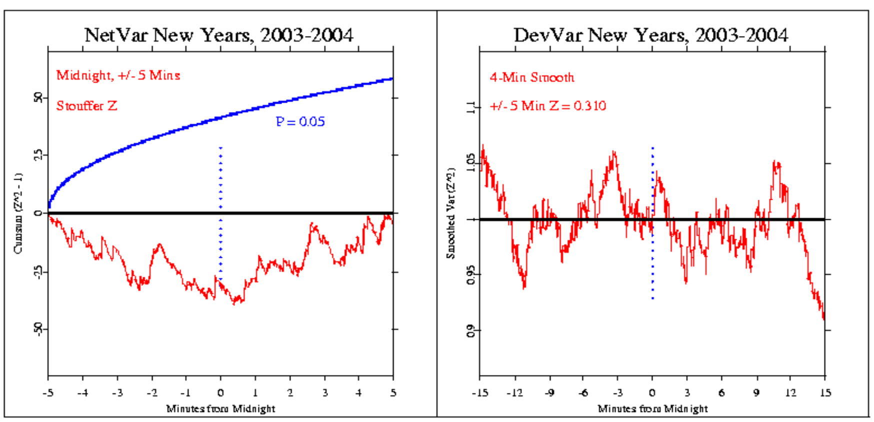

Fig. 7 New Year transition, 2003 to 2004. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight.

2004-2005

The netvar measure was slightly negative but with little overall deviation. The terminal value corresponds to a probability of 0.654. The devvar analysis does show a pattern corresponding to the prediction. The minimum reached by the smoothed variance was exceeded less than 4% of the time (p = 0.039), and approximately 14% of the random permutations were closer (p = 0.142). The combination of magnitude and proximity yields a *VT* statistic with probability 0.091.

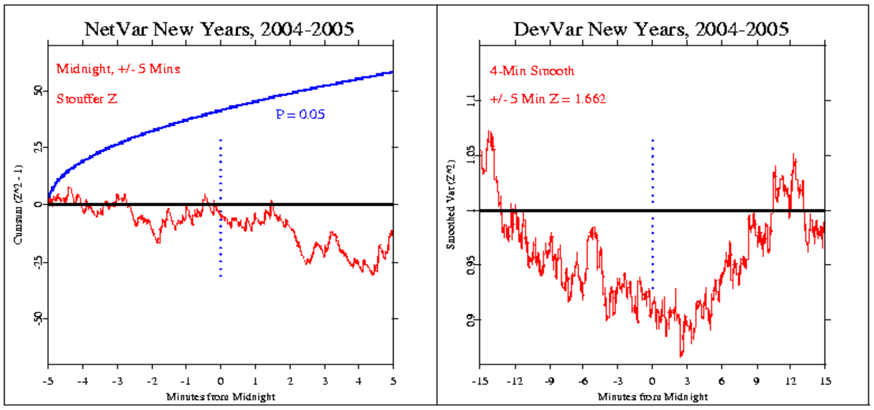

Fig. 8 New Year transition, 2004 to 2005. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight.

2005-2006

The netvar measure was essentially flat. The terminal value corresponds to a probability of 0.516. The devvar analysis for this year has a striking pattern, but it is opposite to the prediction. Near midnight, the variance actually increases to a high value. The minimum point that is the figure of merit for our analysis was a strong deviation, exceeded in the random permutations less than 2% of the time (p = 0.015), but it was so far from midnight (10 minutes early) that 60% of the random permutations were closer (p = 0.600). The combination of magnitude and proximity yields a *VT* statistic with probability 0.356.

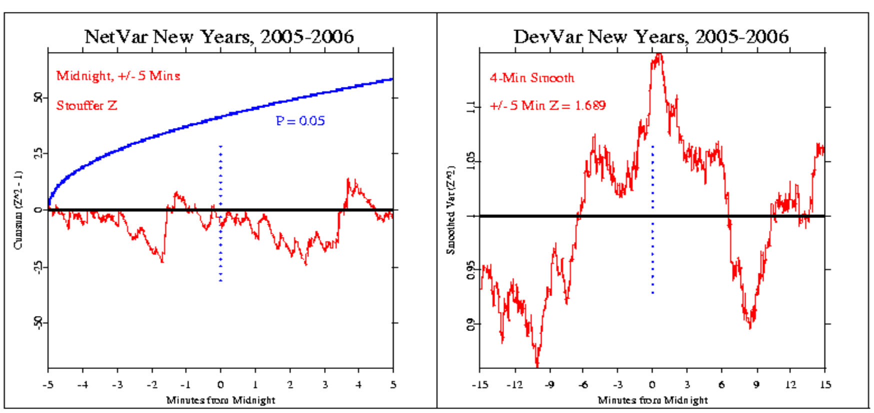

Fig. 9 New Year transition, 2005 to 2006. On the left, the cumulative deviation of the second-by-second network variance for the 10-minute period centered on midnight. On the right, the second-by-second device variance is shown, smoothed by a 4-minute moving average, during 30 minutes centered on midnight.

COMBINING ACROSS EIGHT YEARS

Finally, we look at the combined data from all eight years, presented in graphs similar to those for the individual years. For the meanshift or netvar measure, the squared Stouffer *Z* sequences for the eight years were averaged using the same Stouffer Z procedure across years. The graph in Figure 10 presents the result, which shows a persistent but non-significant negative trend during the 10-minute period centered on midnight. Two years had results that were strongly contrary to the prediction, and five of the eight were essentially flat. Only one year conformed to the prediction. The composite across all eight years has a terminal *Z*-score of -0.873, and $p = 0.809$. In the next phase of the project, focusing on refining our analytical approach, a measure similar to netvar will be included, with a prediction of a negative trend, based on results from the first seven years.

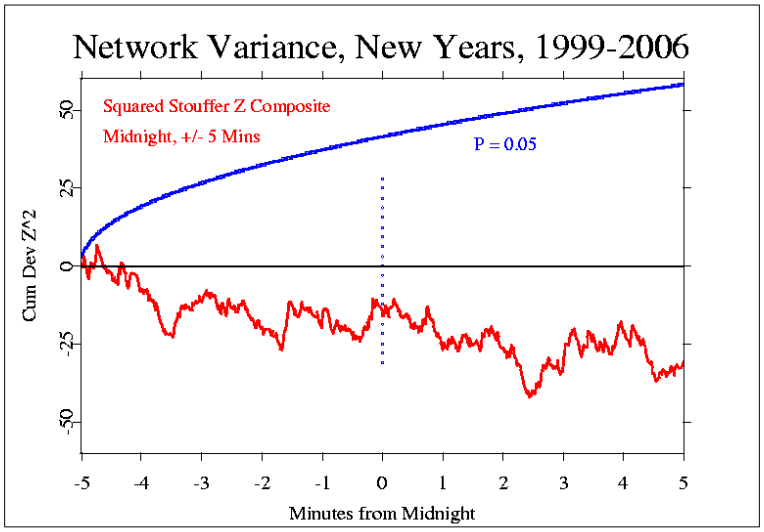

Fig.10 Meanshift (netvar) analysis for composite of eight years, 1999-2006, midnight ± 5 minutes. Each year was treated separately and the eight resulting 10-min sequences were signal averaged.

For the variance measure (devvar) averaged across all eight years, the outcome supports the prediction of decreased variance near midnight. Figure 11 shows that the composite variance begin to drop a few minutes before 12:00, reaches a minimum very close to midnight, and then returns to expected value shortly after. The permutation analysis applied directly to the combined data yields p = 0.088 for the minimum, $p = 0.039$ for its proximity, and $p = 0.026$ for the combination. A calculation of the variance probability based on the *VT* statistic estimated for the individual years can also be made by combining the probabilities from the separate years using an algorithm for meta-analysis (Rosenthal, 1984), $Chisq(df = 2N) = \sum_{i=1}^{N} -2\log_e p$. The result for the combined data from 1999 to 2006 has Chisquare = 32.917 on 16 degrees of freedom, corresponding to $p = 0.0076$. A Stouffer *Z* composition for the 8 years yields $Z = 2.778$, and $p = 0.0027$. These estimates suggest a stronger effect compared with the direct permutation analysis of the signal averaged data across years. This probably is because the *VT* statistic is sensitive to the specific shape of the signal averaged curve, so that the inverted spike in 2006 has a disproportionate effect on the magnitude and position of the minimum, and hence on the statistic.

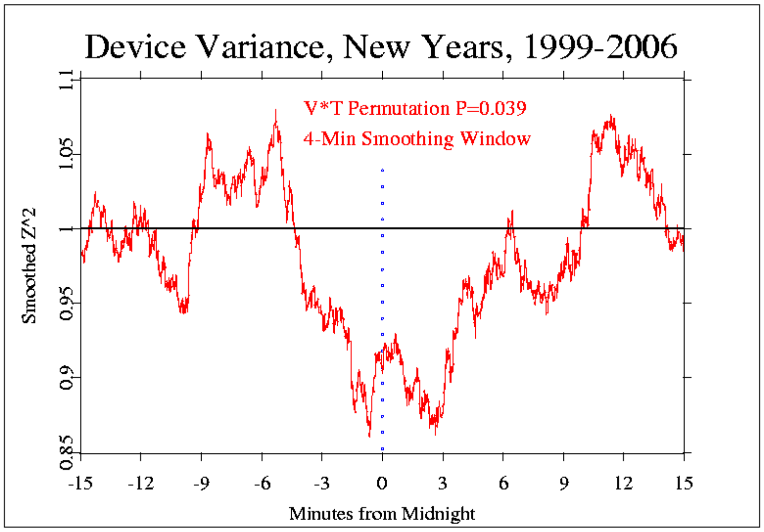

Fig.11 Variance (devvar) analysis for composite of eight years,1999-2006, midnight ± 15 minutes. Each year was treated separately by smoothing the raw device variance using a 4-minute window. The eight resulting smoothed half-hour sequences were signal averaged.

Discussion

More than any other notable moment in time, New Year's Eve gathers us into a common, easy frame of mind. It evokes no strong emotions, though there's more love in the air than usual, and it isn't especially important. We come without much in the way of an agenda other than to wait together for the stroke of midnight, perhaps anticipating a hug or a kiss from someone close. The simple common interests that we share have no great impact, but they resonate and turn us all in the same direction for a brief time. We keep track of the hour, and we are ready when the count-down begins. There are few occasions when so many people think and feel in unison, and almost none that are so light and pleasurable.

It is an ideal moment about which to ask the scientific question for which the egg network was designed: Does a coherent or resonant state of consciousness in the mass of humanity have an effect we can detect?

There are alternatives to consider in case the evidence does point to an anomalous effect. One is that the experimenters' intentions and expectations may be the source of the anomaly. This is not the place to discuss observational models in depth, but they are relevant. Suffice it to say that the GCP data may be a useful empirical resource for theorists to consider. We do have to be clever to distinguish anomalous experimenter influences from the nominal sources of any effects. For example, though it is non-conclusive, we observe a strong, clear result in the variance analysis for 1998-1999, but that question had not been posed at the time, so there is a *prima facie* case that the effect was registered in the data without consciousness of the experimenters, and only revealed *post facto*, years later.

On the other hand, we also have interesting accidental evidence suggesting that the experimenter effect should be taken seriously. In the original analysis software I made a mistake in matrix manipulation, resulting in incorrect epoch definitions for the signal averaging across time zones.

The netvar analyses for several years prior to discovery of the error showed a positive trend in accord with the hypothesis – but it was a mistake; the data were not from the 10 minutes surrounding midnight in each time zone. When the error was corrected, the positive trend disappeared, and the correctly treated composite meanshift shows a substantial negative trend. We cannot be sure what the original positive outcome means, but it is consistent with an experimenter effect somehow producing an incorrect analysis supporting the experimenter's expectations. A detailed "autopsy" of the erroneous calculation reveals that the false result was heavily weighted with data from time zones near GMT, which may have more celebrations and thus greater deviations, fortuitously recruited to support the hypothesis. (Of course the apparent deviations could also have been ordinary random fluctuation.)

To check our analysis procedures, we examine arbitrary data from different dates, as well as pseudorandom data (Walker, 2001). There is no suggestion of structure around the focal moment of midnight in either of these types of "control" data. On the other hand, we observe that the range of variation is very similar to that in the real data. The implication is that the effects we see are not only very small, but they are precisely dependent on the analysis parameters – if we change the question slightly, the outcome may be very different.

The empirical results indicate that the correlations we find operate on the grand scale of the total experiment – a level that sometimes is referred to as teleological. It appears that in this complex, networked experiment, just as in the laboratory with one person and a single REG machine, the anomalous correlations are just adequate to indicate that there is an effect. One may reasonably ask why the effect isn't amplified by having 20 or 30 or 50 REG devices instead of just one. The answer lies in the assumptions we make. While it is natural to think we can transfer models we are familiar with from physics to the less defined domain of consciousness research, it most likely is inappropriate in practice. We clearly are not looking at direct causal relationships or simple "bit-flipping". The question we're asking is more general: Is there a functional, creative and constructive role of consciousness in the physical world? The answer seems to be yes, but it is so subtle that it seems destined to remain, at least for now, in the realm of uncertainty.

There are other potential explanations, but the results reported here are consistent with the hypothesis that temporary large-scale interactions of human consciousness can have effects similar to those found in intention-based mind-machine experiments (Jahn, et al., 1999), and parallel to those in FieldREG experiments (Nelson, et al., 1996, 1998; Radin, et al., 1996). They indicate that the special state of global consciousness operationally defined by the New Year celebrations changes the behavior of our REG devices. At this point we do not have a causal explanatory link, but these analyses suggest that something new comes to exist in the world in conjunction with a shared state of mind focused by a major event. The experiment provides plausible evidence that coherent interconnections in the consciousness domain may produce correlated linkages among the independent random devices that comprise our GCP network.

The present analysis is one of many hypothesis-driven assessments we can make using the GCP database. We have tested and tentatively affirmed the hypothesis that our deep engagement with each other during New Year celebrations changes something measurable in the physical world. Future work will look for confirmatory and complementary analyses to extend our perspectives. For example, in 2005, we looked in depth at the previous seven New Years to develop an optimized prediction for subsequent years. Applied to the 2005-2006 transition, the refined analysis produced a modest positive outcome. (For details, see the links from the 2005-2006 New Year entries in the table at http://noosphere.princeton.edu/results.html). We should note that the present analysis is separate from the formal series of the GCP, which uses only *a priori* specified events.

The GCP database is a resource to be exploited for questions addressing interactions of consciousness with the physical world. We ensure that the data produced in the EGG network are unaffected by ordinary forces and fields, and comprehensive baseline and normalization procedures are in place to guarantee the quality of the data. The result is a multi-year archive of broadly distributed data that are truly random – unless the hypothesized effects of consciousness intervene. The design is thorough and explicit, intended to allow analyses that leave no viable alternatives to the conclusion that the patterns we discover in the data are correlated with events in the world, and by inference with events in the realm of human consciousness.

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