



Funding The Global Consciousness Project

Roger D. Nelson, Director
<http://noosphere.princeton.edu>
rdnelson@princeton.edu 609-924-4875

What is the Project? The GCP is an international scientific collaboration to study interactions of consciousness and the environment on a global scale. (See Encl. 1, Participants) The project is an outgrowth of laboratory and field research on extended capacities of human consciousness. Data are recorded continuously from physical random sources (REGs) at 65 locations around the world. We register one 200-bit trial each second at each node in the network, day after day and month after month, and have done so for six years beginning in August 1998. The data are transmitted over the Internet for archiving and statistical processing on a server in Princeton, NJ. (See Encl. 2, Network)

Why do it? The network was designed to create a continuous, expanding database of consistent, nominally random numbers that could serve as a test platform for investigating possible correlations in longitudinal data from physical, social, and statistical sciences. The data can be used in various research programs, but we have a particular focus: The GCP hypothesis is that the random sequences may show anomalous structure correlated with powerfully engaging events in the world.

What do we find? Our primary analysis is a formal series of tests examining data corresponding to major events. The *question* is whether the GCP data will show structure in the form of departures from expectation in statistical measures. The *answer* is yes, with a 4-sigma accumulation over about 186 rigorously defined tests (odds of 70,000 to one). Other analyses show long-term structure over the 6-year database that should not exist in truly random data. Partitioning the data into independent, parallel subsets confirms the generality of both event-based and long-term effects. Categorization of the data yields some indication of what matters in creating the anomalous effects. Preliminary work with a news intensity index and with polling data suggests meaningful correlations with longitudinal measures in the social and psychological realm. (See Encl. 3, Results)

Quality of the data: The design of the instrumentation uses best practices, and calibrations confirm that the data meet rigorous criteria for randomness. In 2004, we did a fundamental re-analysis including a normalization of the database to empirical parameters. This facilitates access and analyses in a broad range of disciplines. (See Encl. 4, Data Normalization)

Implications: Two categories of questions with broad interdisciplinary interest can be asked:

1. What does it mean for physics and statistics that truly random numbers depart substantially from expectation and show structure where there should be none?
2. What is the practical importance and the philosophical implication of anomalous departures from expectation that are correlated with matters of human interest?

What we want to do: The GCP has been almost entirely a volunteer project, a gift of time and talent from a core group of contributors. The result is a solid proof-of-principle for the project's main propositions. We need monetary and logistical support for people who can build on this background to exploit the GCP data, and expand the range of questions we can ask about the role of mind in the physical world. (See Encl. 5, Logistics)

Enclosure 1: Collaborating Participants

Who is responsible for the Project?

The GCP is an international collaboration of scientists, business people, artists, and others. We are an independent research project affiliated with the Institute of Noetic Sciences, Petaluma, CA. The number of people who have contributed the major portion of time-consuming work to the project is relatively small, but they are an impressive group. Most are affiliated with universities or research institutes, but these institutions are not funding sponsors or responsible hosts for the project. The GCP literally resides in a virtual research space enabled by the Internet and electronic communication. The following list of primary contributors gives some indication of the reach and quality of the GCP team.

Roger Nelson: GCP Director 1997 to present; Princeton University, PEAR, 1980 to 2002

Peter Bancel: Experimental physicist, Paris, France; formerly at U. Penn and IBM Research

Dean Radin: Laboratory director, Institute of Noetic Sciences Research (IONS)

Dick Bierman: Professor, University of Amsterdam and University of Utrecht

John Walker: Founder and retired CEO, Autodesk, Inc.

Greg Nelson: Senior scientist, Princeton Gamma Tech Instruments

Paul Bethke: Windows developer, Network management

Rick Berger: Founder, Innovative Software Design, Website development

Marilyn Schlitz: Director of Research at IONS; Senior scientist, California Pacific Medical Center

York Dobyns: Physicist, Princeton Engineering Anomalies Research, Princeton University

Mahadeva Srinivasan: Senior scientist, Indian Nuclear Research, retired

Dick Shoup: Director, Boundary Institute, Saratoga, CA

Jessica Utts: Professor of Statistics, University of California at Davis

Tom Sawyer: Founder, Santa Rosa Internet Group, E-commerce systems

Jan Peterson: Executive director for public relations, APA, retired

Ed May: Director, Laboratories of Fundamental Research, Palo Alto, CA

Ralph Abraham: Professor, University of Santa Cruz, retired; Founder, Visual Math Institute

Adrian Patrut: Professor, Babes-Bolyai University, Romania

Johannes Hagel: Professor and Founder, Institut fuer Psycho-Physik, Koeln, Germany

There are in addition about 80 other individuals making an important contribution to the GCP by providing host sites and occasional maintenance for the Eggs. They are mostly scientists and academics in universities, but include a broad range of professions.

Enclosure 2: GCP Network

How are the data collected?

The GCP maintains a network of “Eggs” hosted by colleagues around the world. Each Egg comprises a host computer running custom software that records data from a physical random source (REG or RNG). As of early 2005, there are active Eggs in about 65 locations, from Alaska to Fiji, representing most continents and time zones. The REGs produce a continuous sequence of binary digits, and the software samples this sequence. We collect one 200-bit sum, called a “trial” for each second at each node in the network. A detailed (and interesting) look at the process of data collection and the history of the accumulating database may be found at <http://noosphere.princeton.edu/gcpdata.html>.

The Internet is used to transmit the data for archiving and statistical processing to a server in Princeton, NJ. The acquisition and archiving software is designed to register the data with fidelity ensured by special communication protocols and checksums. The map below shows the distribution of the Eggs as of January 2005. Details of REG type and operating system, host name and location, and the data generation history for all eggs are available at <http://noosphere.princeton.edu/eggghosts.html>.

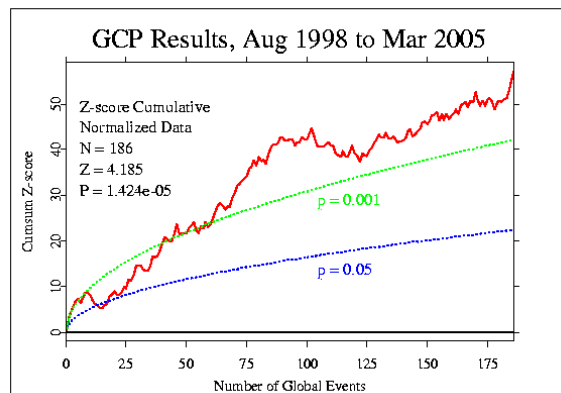
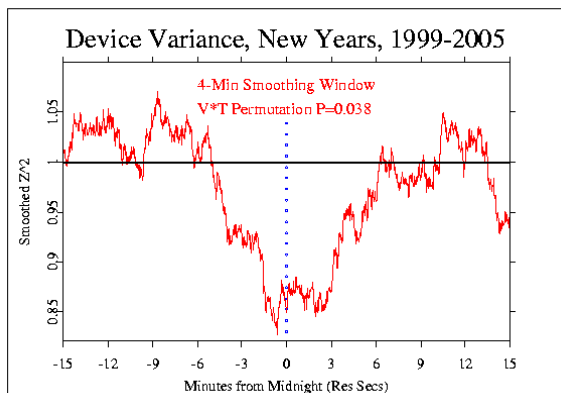
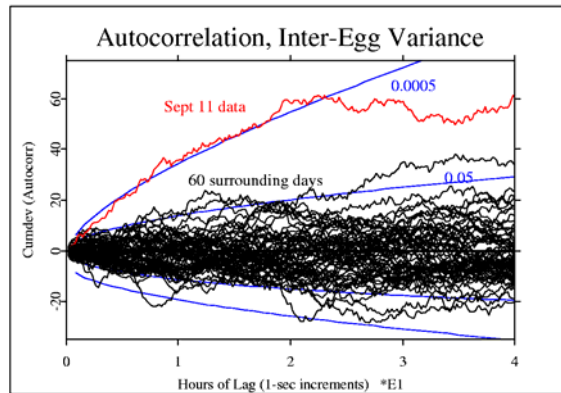
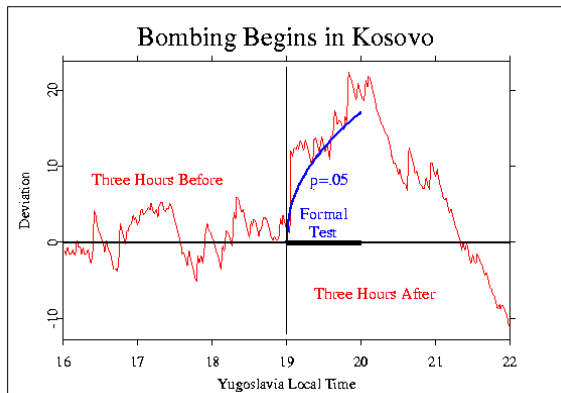


Enclosure 3: GCP Results

What do the data tell us?

On the GCP website, the “primary results” page presents an up-to-date summary of the formal tests. (See <http://noosphere.princeton.edu/results.html>) A large table gives the outcome for each event, including links to simple graphs that visualize departures from random behavior. The figures below give some examples. The graph in the upper left shows the striking changes in the GCP data corresponding to the beginning of bombing in Kosovo in 1999. In the upper right figure, we see the stark difference of September 11 2001 from surrounding days. The shock of the terrorist attacks moved us deeply, and the eggs responded with some of the largest deviations we have seen, creating patterns that appear to be correlated with our intense engagement in the tragic events. In the lower left figure, a composite of all seven New Years we have monitored confirms that the variance among the eggs is reduced around midnight, in accord with one of our predictions. Again, we see a pattern that is evidently correlated with our focused attention.

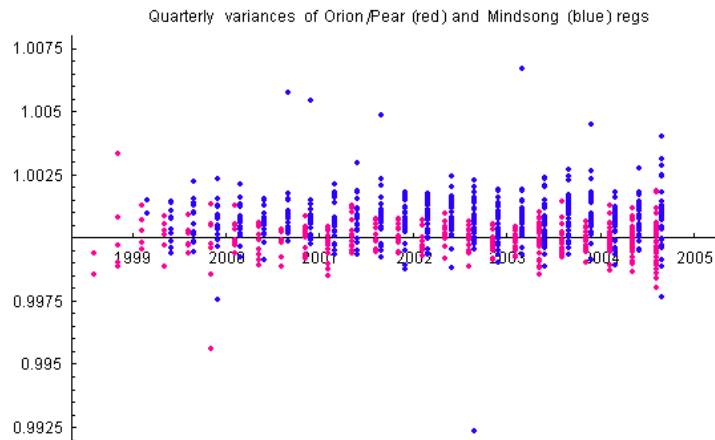
The composite result across 186 individual cases is shown in a chronological graph (lower right) that displays a steady accumulation of differences of the formal data from expectation. If there were no effect, the jagged line representing the results would wander up and down randomly around the horizontal zero line. As the figure shows, the actual results show a steady positive trend. The overall statistics for the project, over six years of data accumulation, indicate a probability on the order of 1 in 70,000 that the correlation of our data with global events is merely a chance fluctuation.



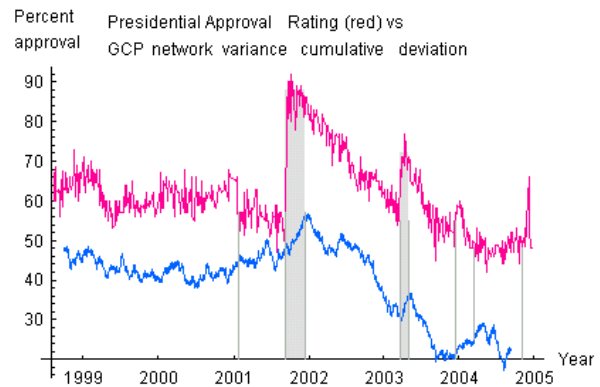
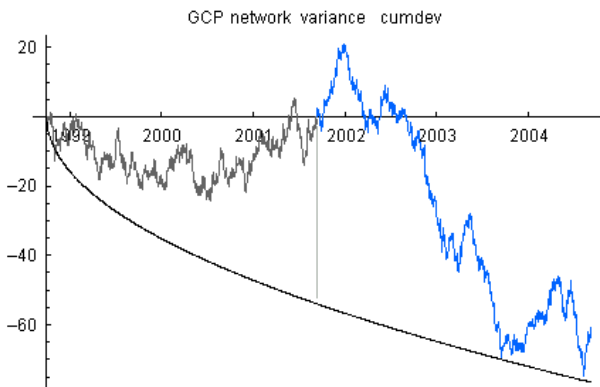
Enclosure 4: Data Normalization

How good are the data?

The REG devices are designed for research, and are of excellent quality. They are calibrated with a million 200-bit trials before being put in service. Careful assessment of the raw data shows they are very close to what is expected by theory. Occasional failures of the computer electronics or power supplies may cause “bad” data, but such cases are automatically detected and excluded. However, these are real, physical devices, which cannot yield a perfect theoretical performance. We use a logical operation to ensure that the mean output is unbiased to first order. This carries a cost in making the second-order statistic, the variance, vulnerable to small biases as shown in the figure below. The variance is very close to the expected value of 1.000, but with very large databases, even these miniscule deviations can become significant. Therefore, we use empirical estimates of these statistics for the formal assessment of the data. This treatment is described in the GCP web pages on normalization and standardization procedures. (See <http://noosphere.princeton.edu/gcpdata.html#normalizing>)



Given the normalized data, it is possible to create a rigorously formal picture of the data over the full database, visualizing any long-term changes or structure. The left figure below indicates that after the end of 2001, the data have a striking negative slope (it is statistically significant). What is more interesting, the overall shape of the long-term GCP data trace is correlated with a sociological measure, the presidential approval rating registered in repeated polls (right figure below).



Enclosure 5: GCP Funding and Logistics

What we want to do

The GCP is the product of time and talent freely given by a remarkable group of people. Our basic logistical needs have been supported by large and small gifts from individual donors, and this generosity has allowed us to accomplish a great deal. In order to capitalize more fully on the project's potential, we are now seeking additional support to complement and extend the ongoing volunteer efforts.

What we need

In the last three years, we have benefited from professional analysis by Peter Bancel that began as a major volunteer contribution. Last year we were able to find support for Peter, allowing him to work almost full-time on the analyses. The results have deepened our insight and understanding. We believe it is essential to continue and extend this work, to take advantage of the solid foundations and the promise shown in the new results. In addition, we have a number of sub-projects that require substantial programming time, and some that need management time from Roger Nelson, which would become available if a research assistant handled routine tasks.

Budget

The following items are rough estimates of the money we know we can spend usefully. The items are in priority order.

1. Continuing support for Peter Bancel. We are looking for about \$40,000 per year. This amount will enable Peter to work much of the time on the GCP analysis projects.
2. Equipment, travel, software, miscellaneous expenses. About \$15,000 per year.
3. Budget for consultants to do scripting and programming. About \$10,000 per year.
4. Research assistant for Roger Nelson. Part time, about \$12,000 per year.

Logistics

The Institute of Noetic Sciences (IONS) manages financial affairs for the GCP. This allows donations to be tax-deductible. Checks may be made out to IONS-GCP, earmarking the donation for The Global Consciousness Project, and addressed to:

Institute of Noetic Sciences
Attention: Marilyn Schlitz
101 San Antonio Road
Petaluma, CA 94952 USA

General Inquiries (707) 775-3500