Worldwide Opinion Differs
(note: Although the person featured in the following article is now deceased, below are excerpts from a 2003 Business Week Online Archives PDF)

Rainmaking Has Its True Believers -- And Skeptics
Science and Technology Section
10/24/2003

China has 35,000 people engaged in weather management, and it spends $40 million a year on alleviating droughts or stemming hail that would damage crops. (Google translated website: Chinese Academy of Meteorological Sciences)

Russian officials claim to order up clear skies for Moscow's May Day parade. It's done by saturating clouds with dry ice, producing so many tiny droplets that drops can't grow big enough to fall as rain -- at least for a while. (Russian Federation Meteorological site)

In the U.S., though, there is no clear consensus on how well such techniques work, or if they work at all. In the 1970s the U.S. plowed $20 million a year into cloud-seeding research, but almost all federal funding has since dried up.

Nevertheless, dozens of state, local, and private operations continue in 10 states, including California (PDF of California precipitation enhancement projects), Idaho, Nevada, and Utah. Vail Mountain in Colorado and many other ski resorts pay for cloud seeding, and Vail estimates that teasing more precipitation from clouds boosts its snowpack by 15%.

While modern rainmakers and their clients believe the technology works, convincing the skeptics will be difficult.

For the statistical proof that science normally requires, the data on weather-modification efforts might need to span 60 years or
more -- at least two of earth's 30-year weather cycles. Only a few
of the cloud-seeding programs, including one in Saudi Arabia and one in
Wyoming, are now collecting rigorous data.

Perhaps the most controversial technology comes from
Russia and Mexico (translated ELAT site).

In 1996, Russian space and weather control scientists
hooked up with Gianfranco Bisiacchi, then head of
Mexico's space efforts, and founded Electrificación Local de la Atmosfera Terrestre (ELAT)

Nominal results from the three ground stations set up by ELAT in 1998 were so
impressive -- rainfall was reported to increase by as much as 30% -- that Mexican
state governments were soon clamoring for more facilities. There are now 13, with
additional ones being installed in Baja California and the state of Puebla.

ELAT claims credit for ending the severe drought in northern
Mexico. Since 2000, says Bisiacchi, the amount of
annual rain in the region has been "30% to 35% greater than
what it was during the 1990s. In fact, the lakes of the region
that were dry are now full."

When operations in the northern states of Sonora and Chihuahua started in 2004,
he adds, most lakes were around 8% full. "We've now gone to levels of 85% to
90% -- in just one year."

ELAT says its technology is more efficient
than regular cloud-seeding
methods. "Milking" clouds is usually done
by sprinkling them with particles of silver iodide. The particles provide a site where the clouds' ice
crystals accumulate in clumps too heavy to stay aloft.

Bisiacchi and his team take a different tack: They generate
charged ions on the ground and point them skyward. That,
they claim, fosters clumping on both airborne dust
particles and ice crystals touched by a charged ion.

**The Concept of Ionization**

*(note: Below are excerpts from a research paper co-written by the
CEO of ELAT Technologies)*

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**POSTED BY A. DE ROCHE AT 12:24 PM**

**LABELS:** CHINA, MEXICO, RUSSIA
**ARTIFICIAL ATMOSPHERIC IONIZATION:**
A Potential Window for Weather Modification (PDF)

Phillip Kauffman
Arquimedes Ruiz-Columbié

**Introduction: Cosmic Rays and Cloud Processes**

In 1997 Svensmark and Friis-Christensen reported a correlation between cosmic rays and cloud cover. They found that the observed variation of 3 – 4% of the global cloud cover during the recent solar cycle is strongly correlated with cosmic ray flux.

This was hailed by some as the key to the mystery of how the sun affected climate and produced climactic changes. It was also a confirmation of the long standing suspicion that cosmic rays were linked to global cloudiness.

Numerous articles followed studying the catalytic effects of ions from cosmic rays on micro-physical cloud processes and cloud cover.

Of particular interest is the observation from recent satellite data, that cosmic ray-cloud correlation is much more intense in low level clouds than in high level ones.

More cosmic rays correlate to more low level clouds (altitudes of less than 3 km) and lower temperatures.

Low clouds exert a large net cooling effect on the climate. Therefore, greater cosmic ray intensity translates to more cloud cover and cooler temperatures.

The link between global low cloud amounts and cosmic ray intensity has been published in the U.S. by Marsden and Lingenfelter who say: "The observed correlation between global low cloud amount and the..."
flux of high energy cosmic rays supports the idea that ionization plays a crucial role in tropospheric cloud formation”. (above image from "Scientists Predict Big Solar Cycle"/NASA)

Cosmic ray flux variability is not limited to a solar cycle. Although the energy input from cosmic rays is tiny, as the dominant source of ionizing particle radiation, they have a profound effect on many atmospheric processes.

From those observations, it has been established that cosmic ray intensity declined about 15% during the 20th century, roughly about the same variation as the last solar cycle.

**Hypothesis:** General Statement and Conceptual Model

Ions produced by direct current generators by corona effect will add to and enhance the catalyzing effects that cosmic ray ions are now known to produce in, among other things, lowering nucleation barriers, stimulating charged particle growth and stability and increasing the scavenging rate in clouds.

The injection of a large number of DC corona effect ions will induce changes in cloud microphysics and cloud cover and, consequently modifications in weather conditions.

POSTED BY A. DE ROCHE AT 10:11 AM
LABELS: ELAT, IONOSPHERIC WEATHER MODIFICATION
Russia (5)
Russia Ionospheric Stations (1)
Russia/BERYULEV (3)
Salter (1)
Saudi Arabia (3)
Secretary of Commerce (1)
Senate Bill S.517 (1)
Silver Iodide (10)
silver toxicity studies (3)
Singapore (2)
Slovenia (1)
SOARS (1)
South Africa (2)
South Korea (2)
Spain (1)
SPECTRA (1)
SPERP (2)
STC (1)
stratospheric cooling (1)
Super Computer Climate Modeling (2)
Super Computers (3)
SuperDARN (1)
Swedish Institute of Space Physics (1)
Syria (2)
Tanzania (1)
TECNAGRO (1)
Teller Dr. Edward (5)
Texas (5)
Thailand (5)
The Atmospheric Science Program (1)
tornado suppression system (1)
U.S. and Canada WM treaty (1)
U.S. Department of Commerce (2)
U.S. drought facts (1)
UN Framework Convention (1)
United Arab Emirates (3)
USWRP (1)
Utah (3)
Uzbekistan (2)
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