

News from Deep Space!

HIPACC journalist roundtable

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Stories about astronomy attract rapt audiences

- The solar system is our “home”
- The Milky Way / galaxies are beautiful
- Extreme astrophysical objects rock
- Cosmology compels us fundamentally
- The prospects for other life (E.T., slime) hold nearly universal fascination

Collection of astronomy stories in *Smithsonian* / December 2010



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Simulations add a level of explanatory complexity

- Computer science: Eyes glaze over
- Supercomputers: Experiments *in silico* simply are harder to convey
- As simulation stories get quantitative, editors get nervous, proportionally
- Many simulations are dazzling, but: Why should readers believe them?

Supercomputer-generated images/movies: Amazing!

We now live in a **visual** media environment

- Space weather simulations
- Supernovae / black holes / GR
- The first stars and galaxies
- Large-scale cosmic structure

HIPACC roundtable: Possible talking points

- Tell stories: Delve beyond pretty pictures with scientific and personal narrative
- Use metaphors and accessible analogies, from your sources or devised by you
- Not all stories work for all audiences
- Be Skeptical of, well, B.S.
- The role of institutional press officers

Storytelling from HIPACC: Scientists are people, too.

- Scientists: Be available to reporters
- Convey why this research matters to *you*, and why it should matter to *us*
- Journalists: Ask your sources for their anecdotes, frustrations, and revelations
- Always keep your audience in mind

Good stories have vivid characters



Karel Schrijver

Lockheed Martin Solar and
Astrophysics Laboratory
Palo Alto, Calif.

**“When we show these
movies to our colleagues
for the first time, the
professional expression
is generally, ‘Whoa!’”**

Metaphor and analogy: Essential for the “mind’s eye”

- Universal laws of physics; draw upon familiar comparisons (*One Universe*)
- Help your reader visualize, e.g. a grain of sand spread within a 1/2-mile sphere
- Might an Earthly process be relevant? e.g. Steamboat Geyser / NS superbursts

Ashes to Ashes: The Inner Lives of Neutron Stars

"Superbursts" that rage for hours within certain neutron stars might drive exotic thermonuclear reactions unique in the universe

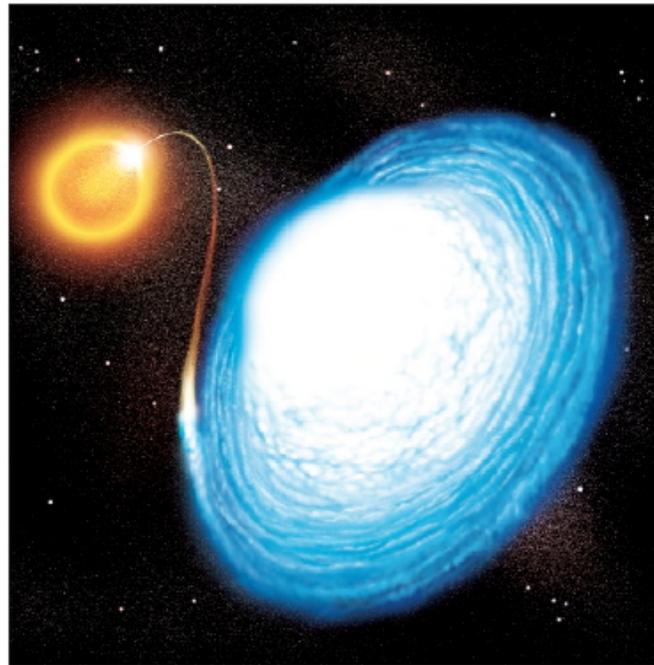
CHICAGO, ILLINOIS—Steamboat Geyser, in the heart of Yellowstone National Park, usually shoots fountains of water 5 to 10 meters high. But at irregular intervals of years to decades, the geyser unleashes a scalding 100-meter column, followed by a deafening roar of steam for a day or more. A mysterious trigger far underground expels the deepest, hottest water from the geyser's hydrothermal system in a crowd-pleasing burst.

Similar outbursts happen in space, astrophysicists have learned. Powerful and unpredictable flares of energy, given the geyserlike name of "superbursts," strike beneath the surfaces of a few special neutron stars—the dense, spinning corpses of stars that died in supernova explosions. Orbiting telescopes have spotted seven superbursts so far, spouting intense x-rays for hours. Even more compelling than the fireworks is the root cause: a thermonuclear flash of heavy elements, burning in ways that might occur nowhere else.

Superbursts happen only in tight binary pairs, where a neutron star pulls gas from the outer atmosphere of a small companion. Under certain conditions, a layer of the gas—usually hydrogen and helium—can build up on the neutron star's surface. Every few hours or days, this raw nuclear fuel spontaneously combusts in about 10 seconds. Astrophysicists first spotted

astrophysicists thought pure carbon fueled the flame (*Science*, 17 November 2000, p. 1279). However, new calculations suggest that although carbon is indeed the spark, most energy in a superburst comes from far heavier elements that literally disintegrate in a 7-billion-kelvin bath of gamma rays.

"We sometimes get lulled into believing that we've seen it all in astrophysics, then nature comes up with something new and amazing," says physicist Robert Rosner, director of the Department of Energy's Center



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Don't explode your readers' brains

Recognize how far you can go, conceptually

- SciDAC Review (U.S. Department of Energy)
- Physical Review Focus (American Physical Society)
- Sky & Telescope / Astronomy
- Science
- Scientific American
- New Scientist
- Discover
- National Geographic
- Smithsonian
- Chicago Tribune
- Muse (Smithsonian publication, ages 10-16)
- Highlights for Children

- and whatever you do...

**Please avoid plasma
magnetohydrodynamics!**

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B.S.

Be Skeptical / Detect B.S. / Use your B.S.+

- Eschew single-source stories
- Ask challenging questions
- Draw upon your own training to act as knowledgeable gatekeepers
- Shoot down crap / collectively, our informed journalism enterprise can self-correct

Journalists and institutional press officers

- High-caliber PIOs are wonderful resources; get to know who they are
- Subvert churnalism; do your own reporting
- Recognize that agendas do exist
- Beware of scientist-issued “news releases”
- NASA’s giga-tera-peta publicity machine



<http://scicom.ucsc.edu>

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