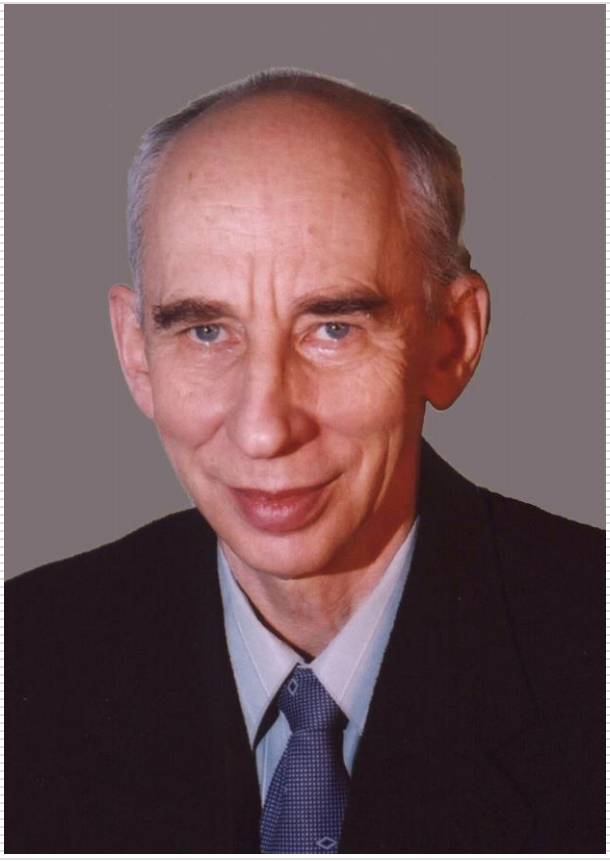
In memory of Evgeny Pavlovich Mazets

R.L. Aptekar, Ioffe Institute



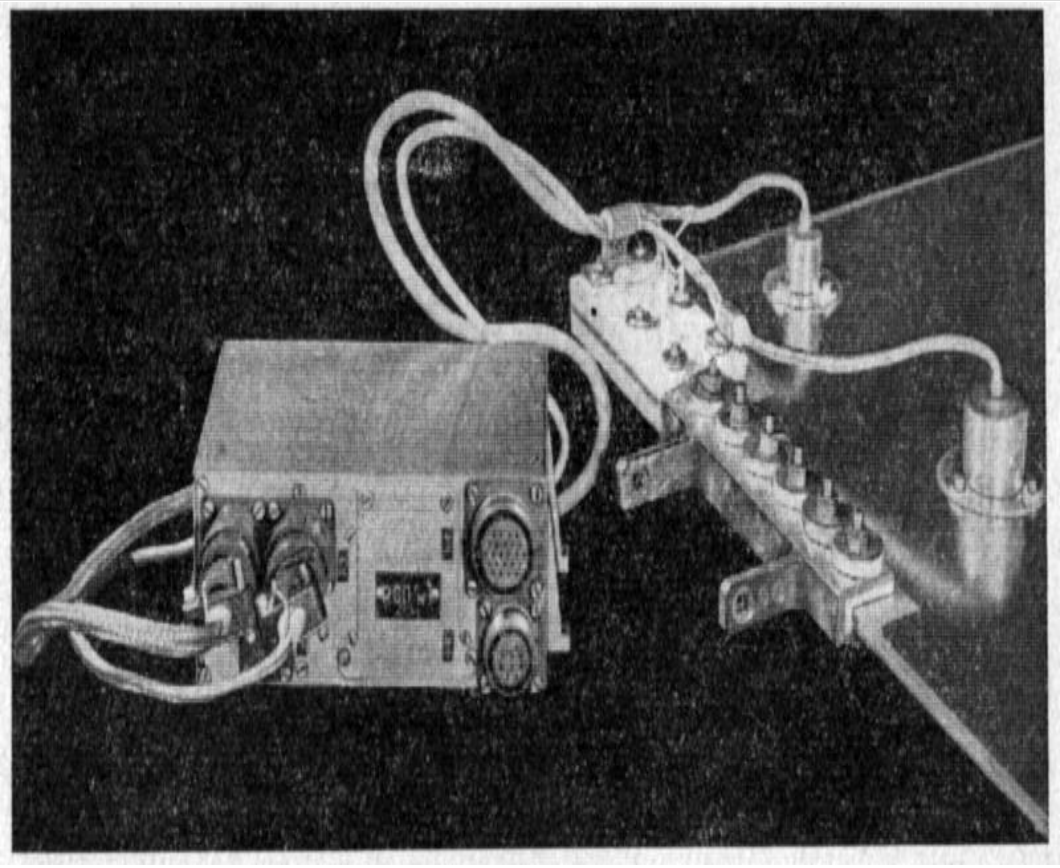
An experimental rejection of the hypothesis for the dust cloud surrounding the Earth

(Space Research, Berlin, Akademie-verlag, 1971, v.11, p. 363-369)

- It was developed an instrument with high level of noise immunity and high sensitivty

  ~3×10^{-10} g.

- The 1966-1967 studies with this equipment installed on the Kosmos-135 and Kosmos-163 showed with high reliability that flux of dust particles is lower by factor 1000 than flux from previous measurements.



The dust coma of Halle's comet (Mazets et al.,1986, Nature, 321, p.276-278)

The SP-2 instrument (Vega-1 and Vega-2 spacecraft)

An acoustic sensor:

- surface – 500 sm^2
- diapason 10^{-13} – 10^{-6} g
- mass spectra - 16 integral channels with capacity 12 beats

An ionization sensor:

- surface – 4 x 10 $см^2$
- diapason 10^{-16} – 10^{-11} g
- Mass spectra - 6 integral channels with capacity 16 beats

In: 20th ESLAB Symposium on the Exploration of Halley's Comet, ESA, SP-250, 1986

Cumulative dust flux distribution in the inner dust coma in comet P/Halley

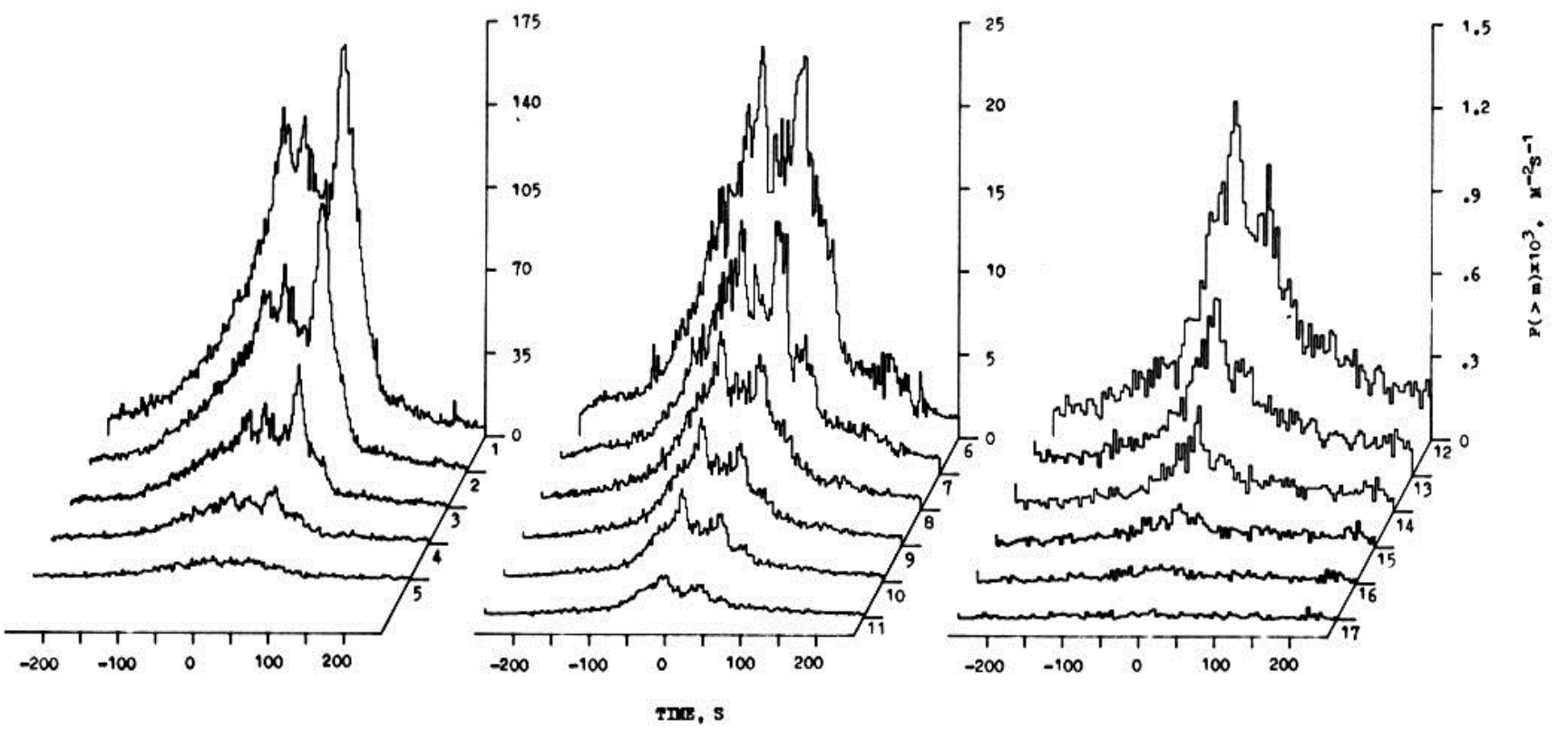
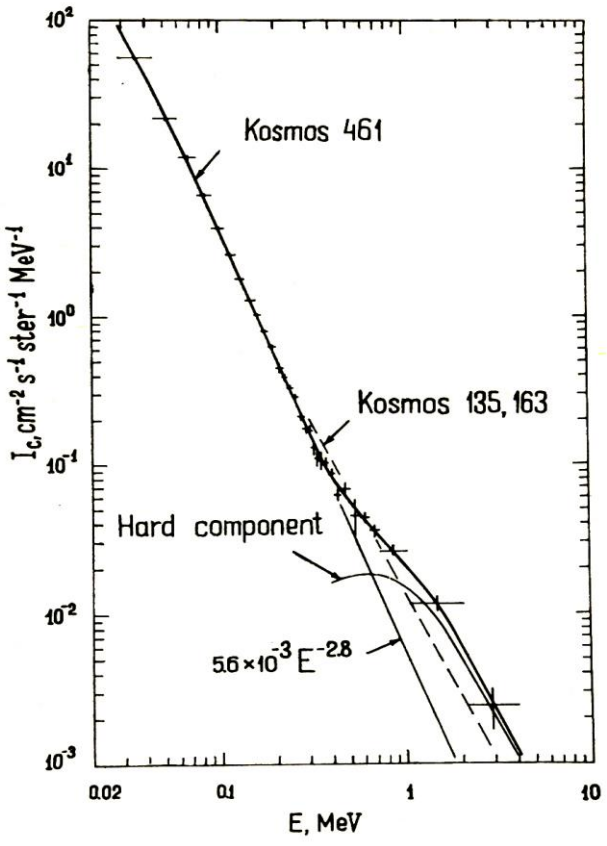
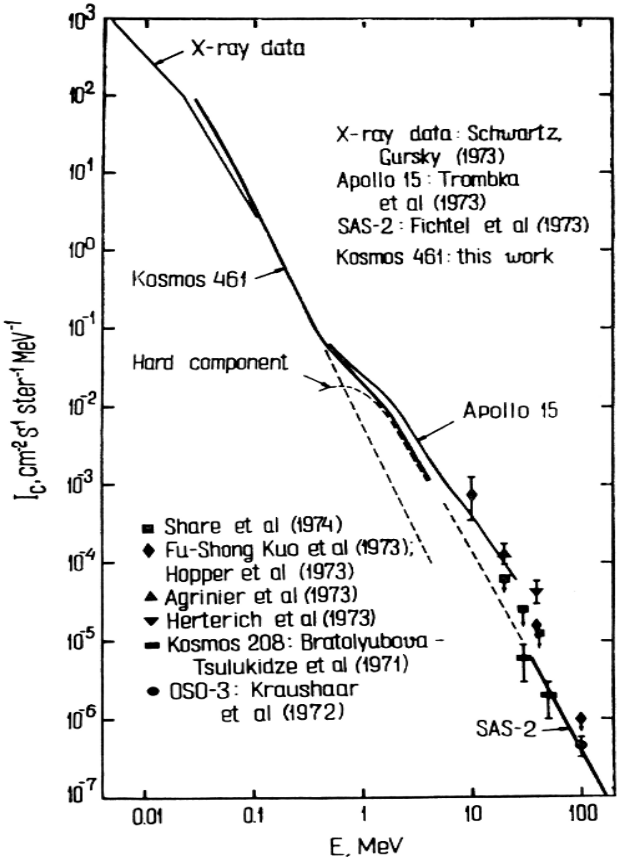


Fig. 6. Cumulative dust flux distribution in the inner dust coma, $R < 2\,10^4$ km, Vega 2. Curves 1–17: $m > 6.0\,10^{-16}$, $6.0\,10^{-15}$, $6.0\,10^{-14}$, $6.0\,10^{-13}$, $6.0\,10^{-12}$, $6.5\,10^{-13}$, $1.8\,10^{-12}$, $5.2\,10^{-12}$, $1.5\,10^{-11}$, $4.1\,10^{-11}$, $1.2\,10^{-10}$, $3.3\,10^{-10}$, $9.2\,10^{-10}$, $2.6\,10^{-9}$, $7.3\,10^{-9}$, $2.1\,10^{-8}$, and $5.8\,10^{-8}$ g, respectively

"Diffuse cosmic gamma-ray background in the 28 keV -4.1 MeV range from Kosmos 461 observations",
Mazets E.P. et al., Astrophysics and Space Science, 1975, 33, 347-357

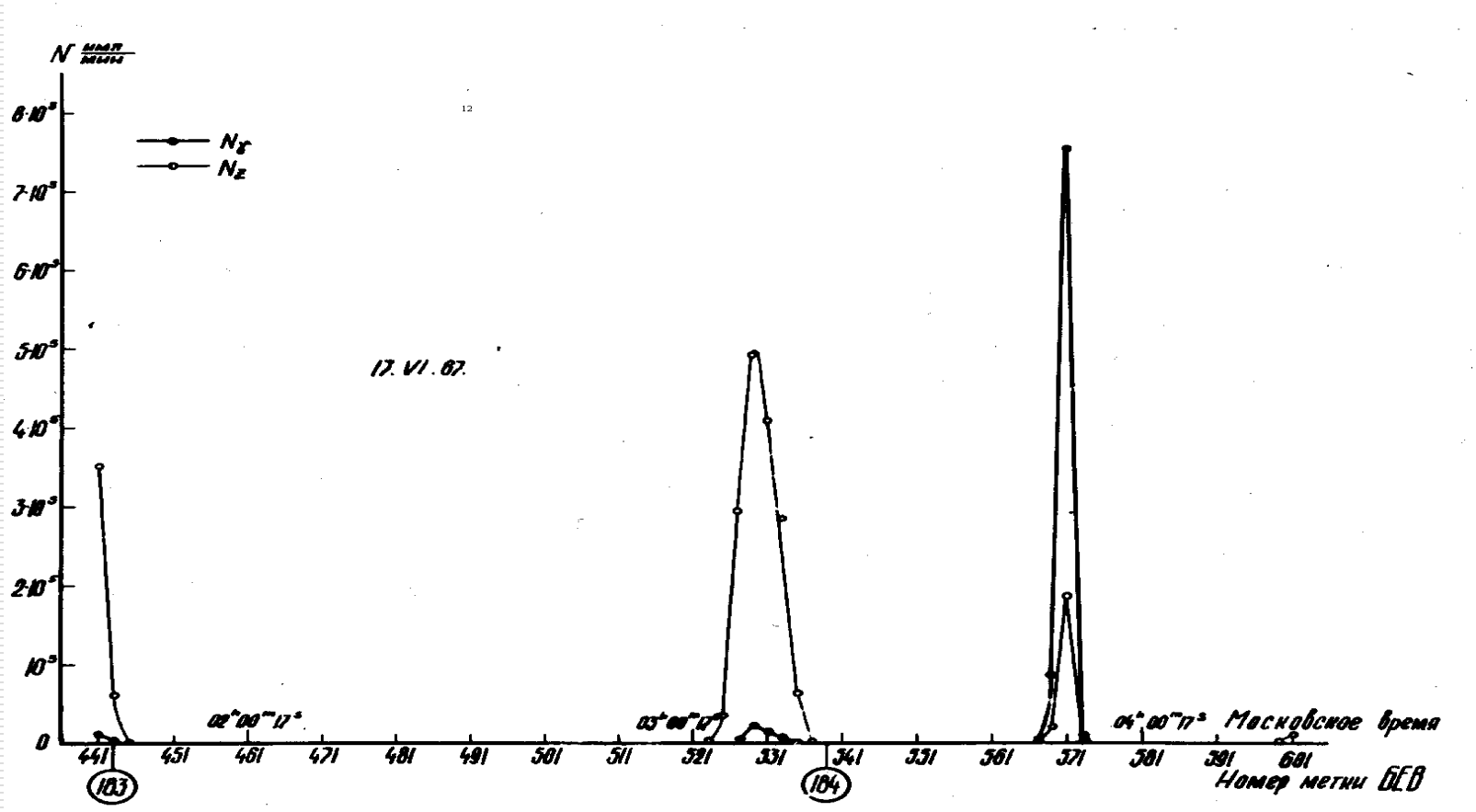


Kosmos-135, 163

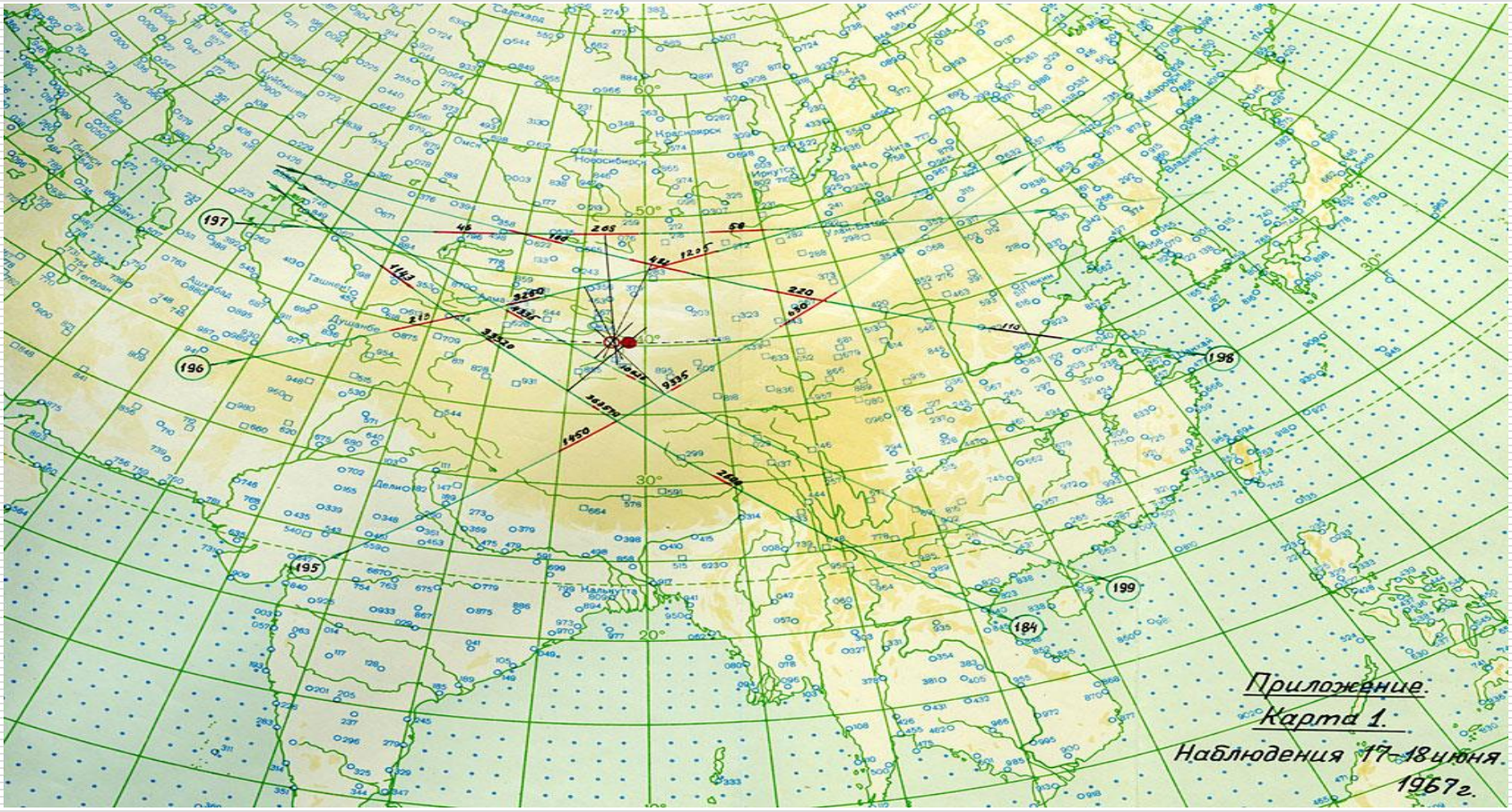


Kosmos-461

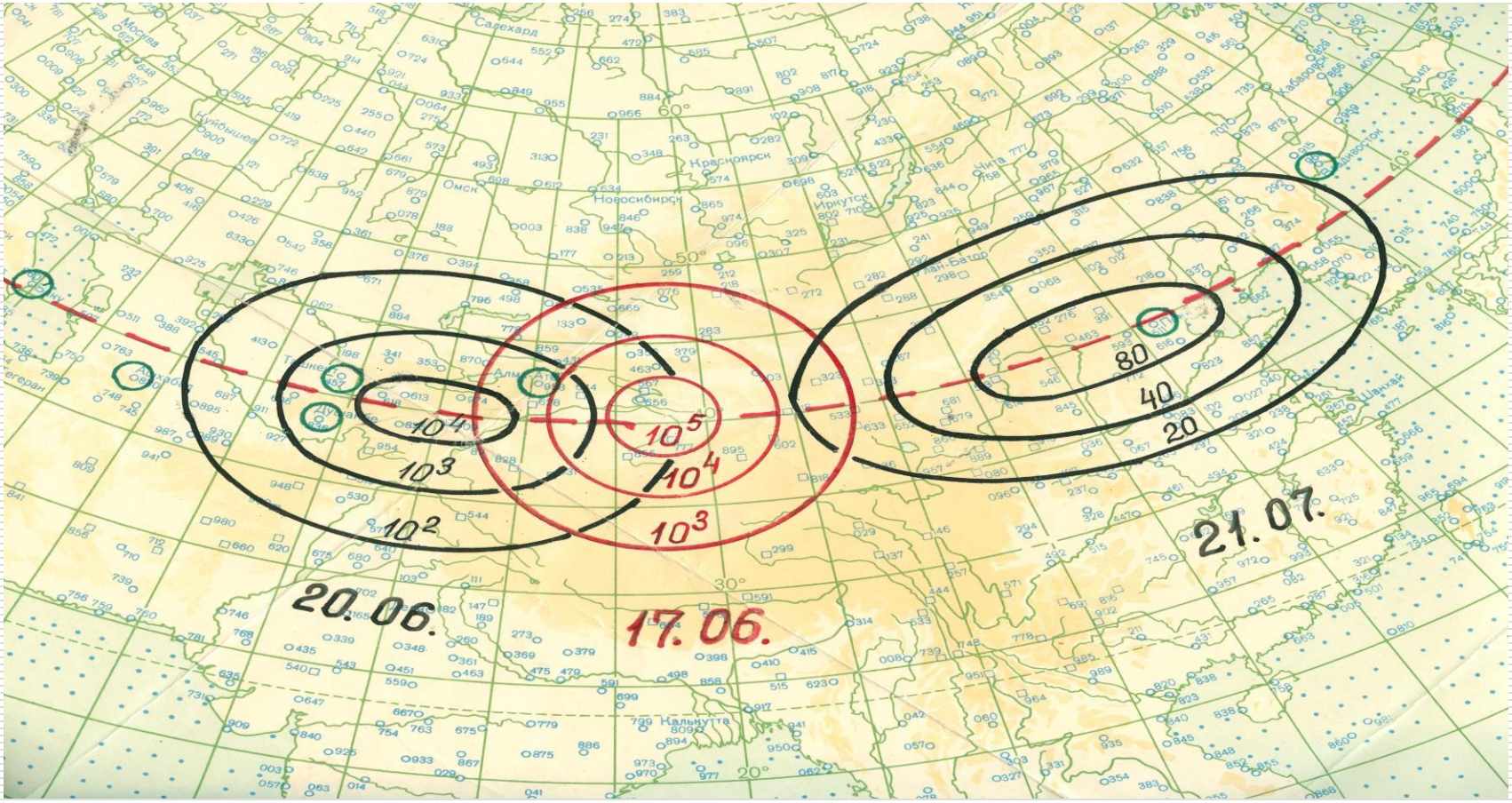
A technogeneous gamma-radiation in space.
The detection of thermonuclear explosion in China on June 17, 1967 by gamma-ray spectrometr on board Kосмos-163 sattelite



The cloud of thermonuclear explosion products was seen from space many days. We had determined the time of the explosion, position, power of the explosion and height of the cloud at atmosphere.

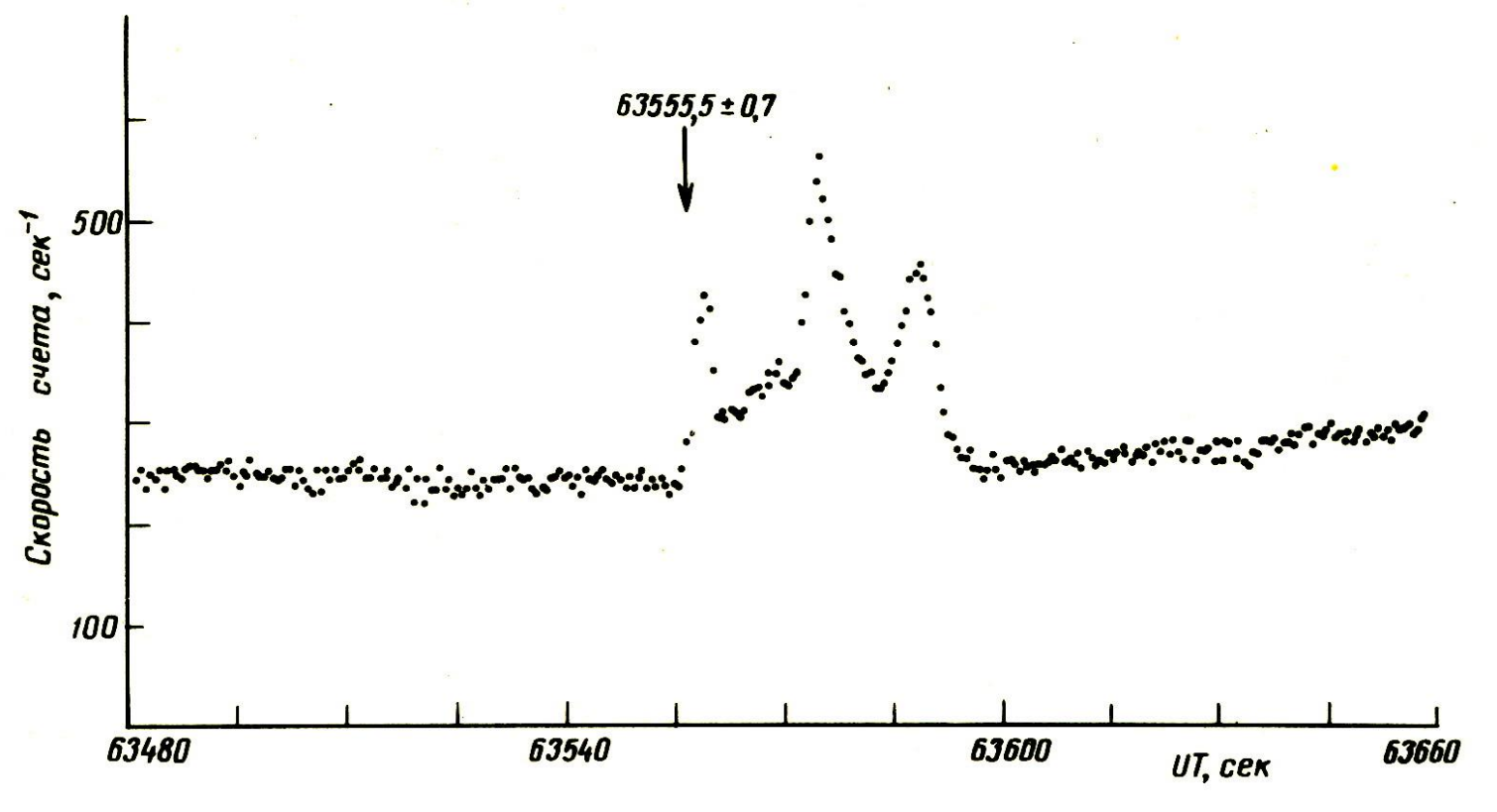


The cloud of thermonuclear explosion products was a good tracer for investigations of the circulation in upper layers of the atmosphere.



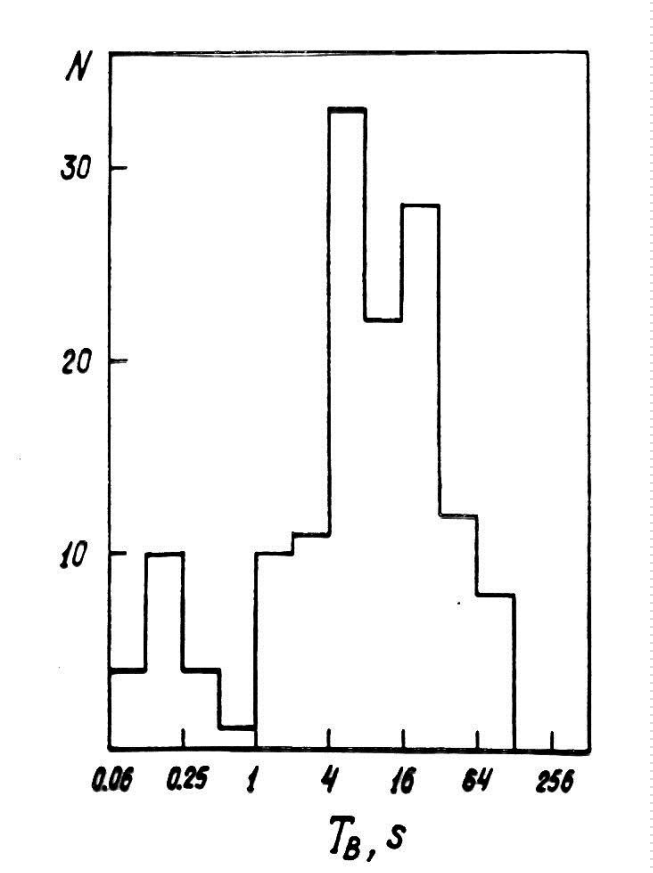
One of the first independent confirmation of the GRB discovery. A gamma-ray detector on Kosmos-461 s/c detected GRB720117 from Vela catalog

(Mazets et.al., 1974, JETP Letters, 20, 77-80)

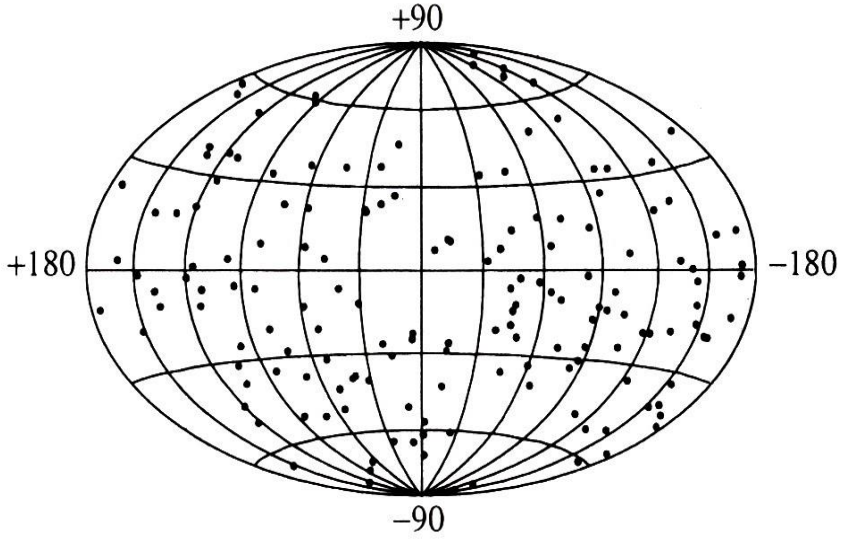


The KONUS experiments on board the Venera 11-14 missions on 1979-1983

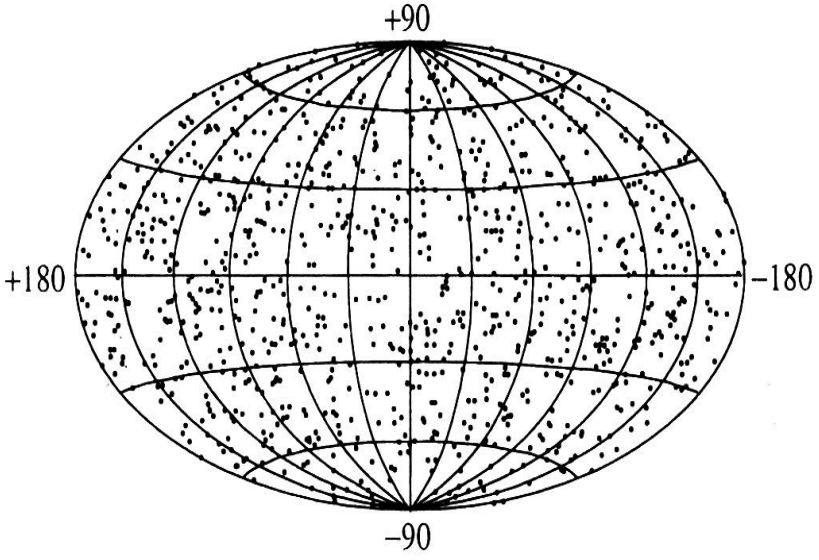
- The study of light curves and energy spectra of the burst led to the discovery of of a special class of short hard bursts (A&Sp.Sci. 1981).



The localization of about 200 GRBs filed to identify a statistically meaningfull concentration their sources, either in the galactic plane or in the center of the galactic disc. This pointed to the extragalactic origin o the sources and to the extreme energy scale of these events.

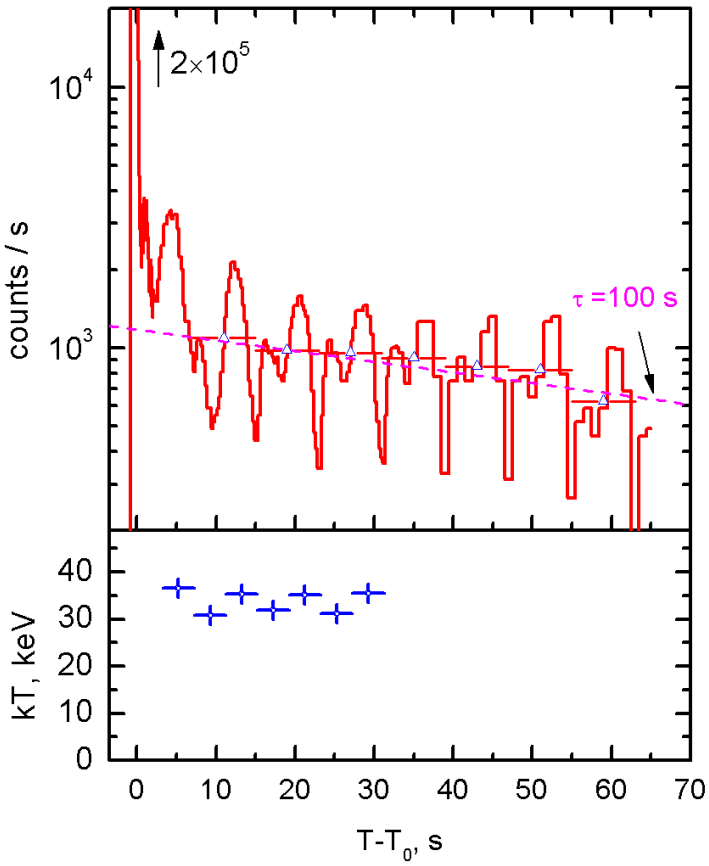


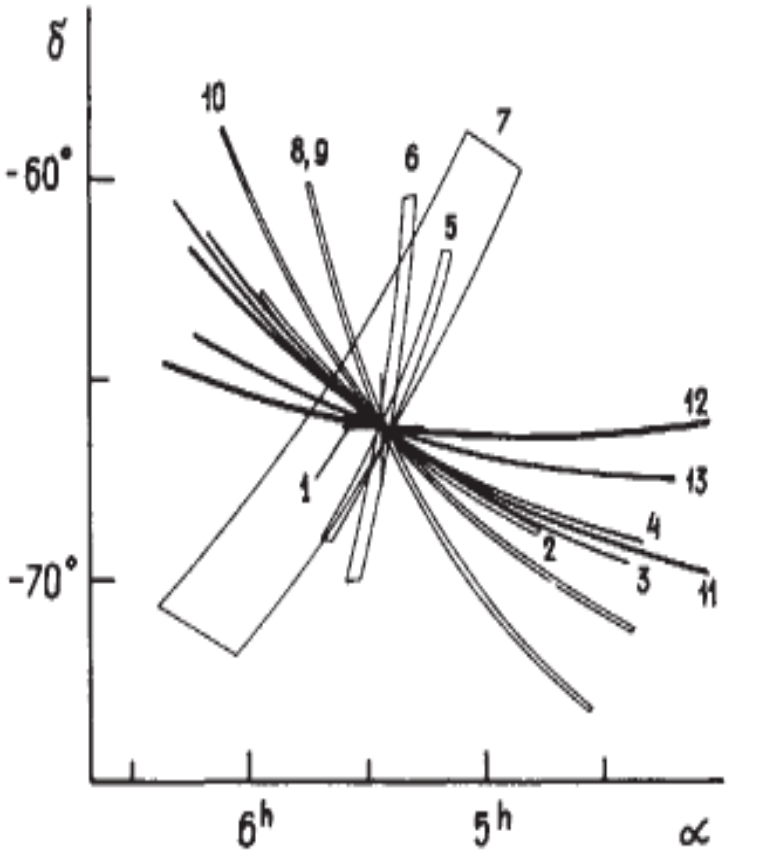
KONUS, Venera 11-14 missions,
Astrophys.Space Sci., 1988



BATCE, CGRO,
Ap.J., 1996

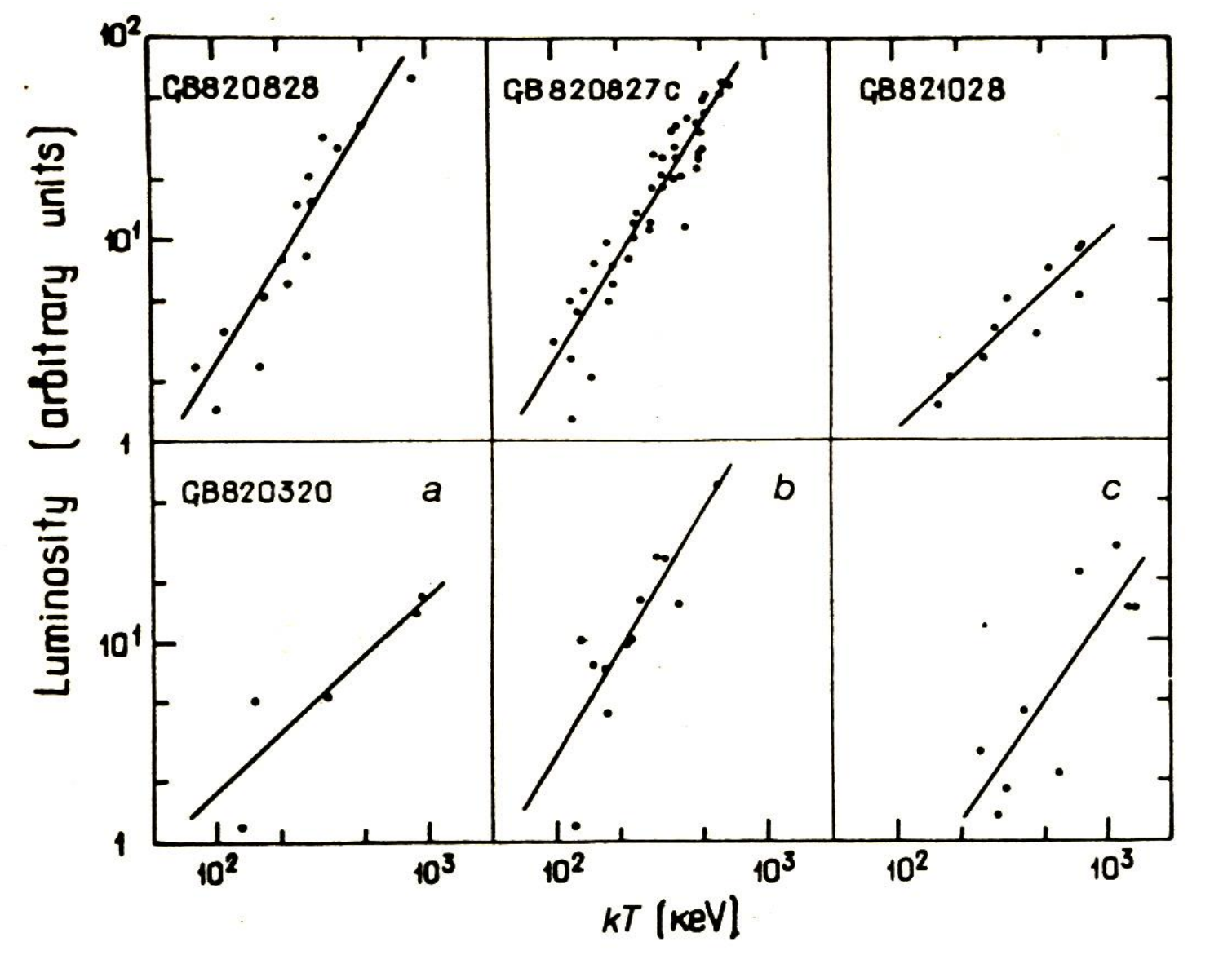
The SGR discovery





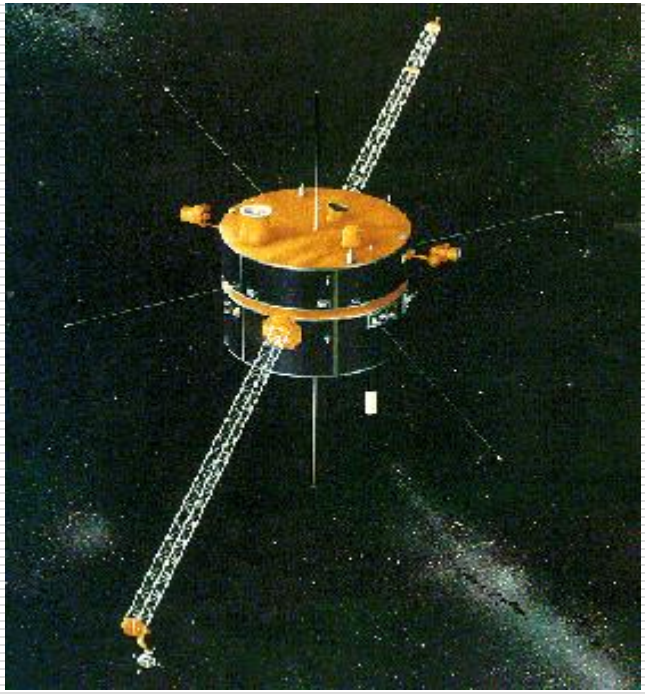
SGR0526-66 giant flare on March 5, 1979г., Nature, 1979

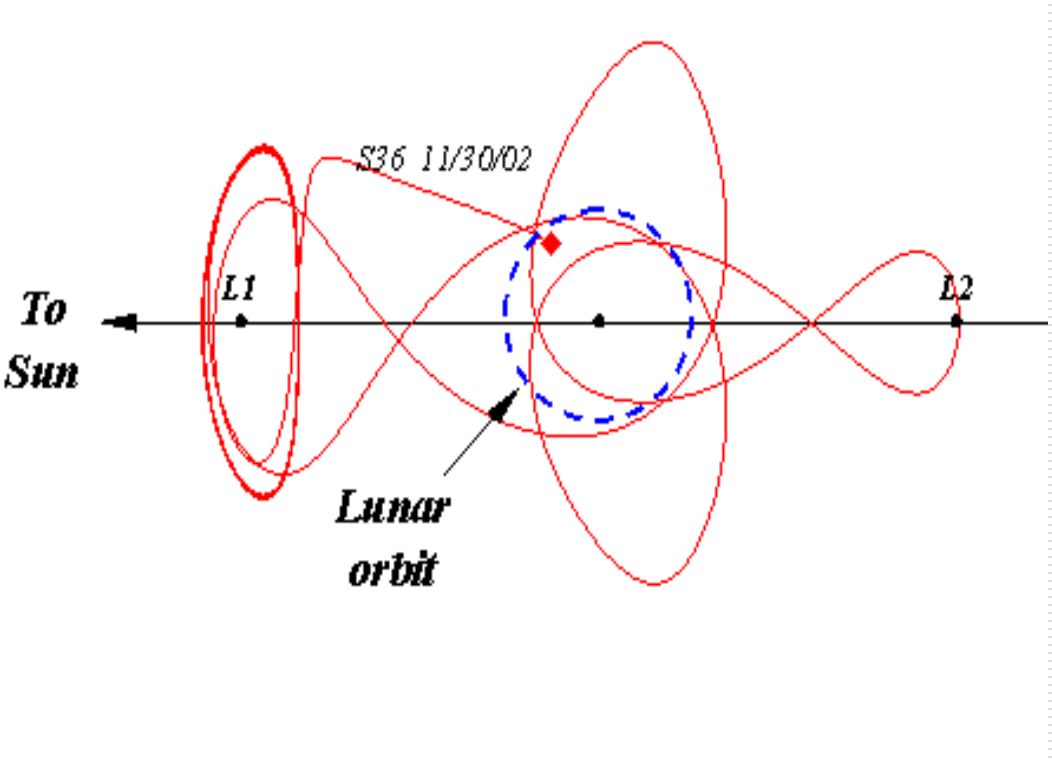
Repeated bursts of SGR0526-66, Nature, 1983



The first evidences of hardness-intensity correlations, Venera 13-14 missions, Nature, 1983.

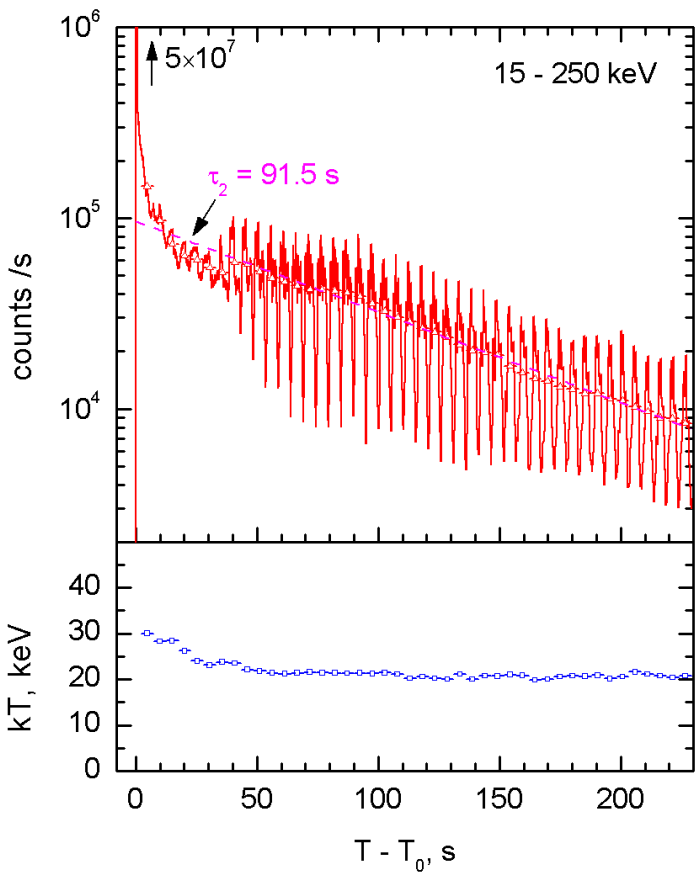
Joint Russian-American KONUS-WIND experiment

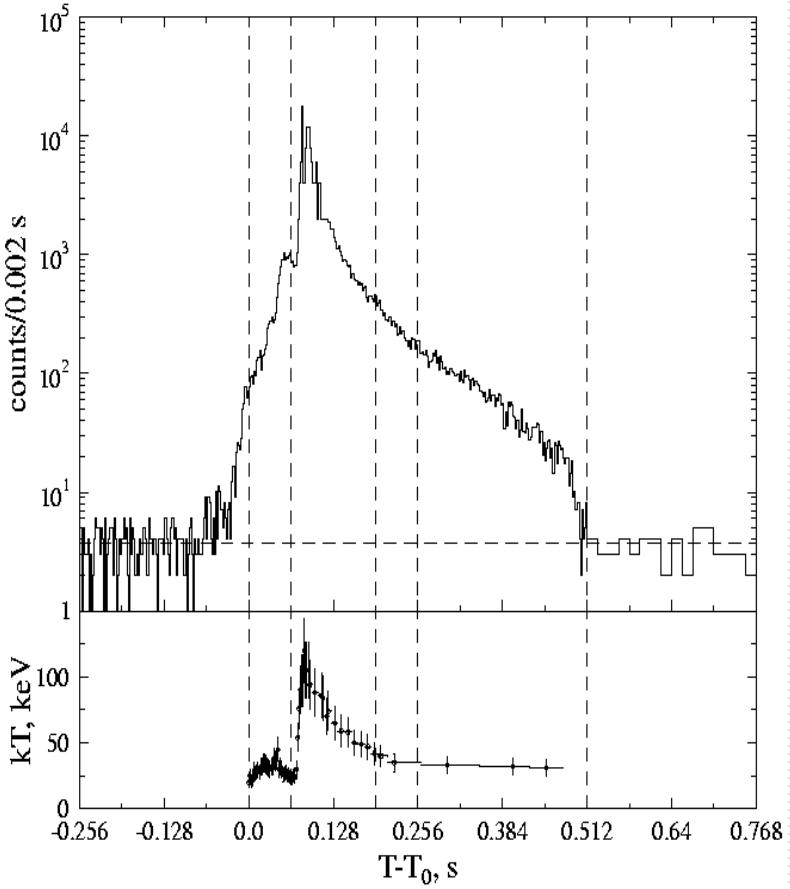




S/c «Wind», 1994 – up to now

KONUS-WIND

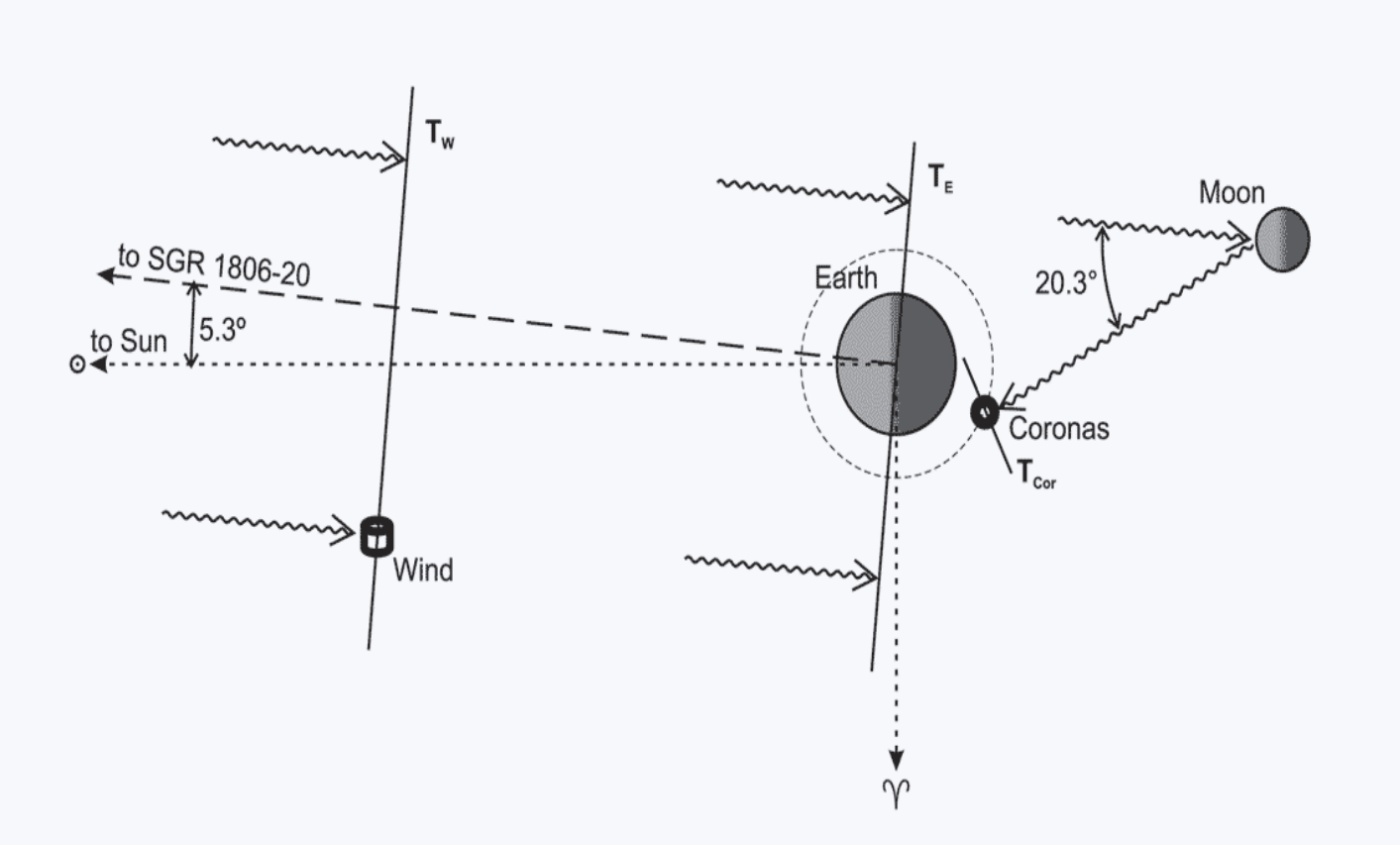




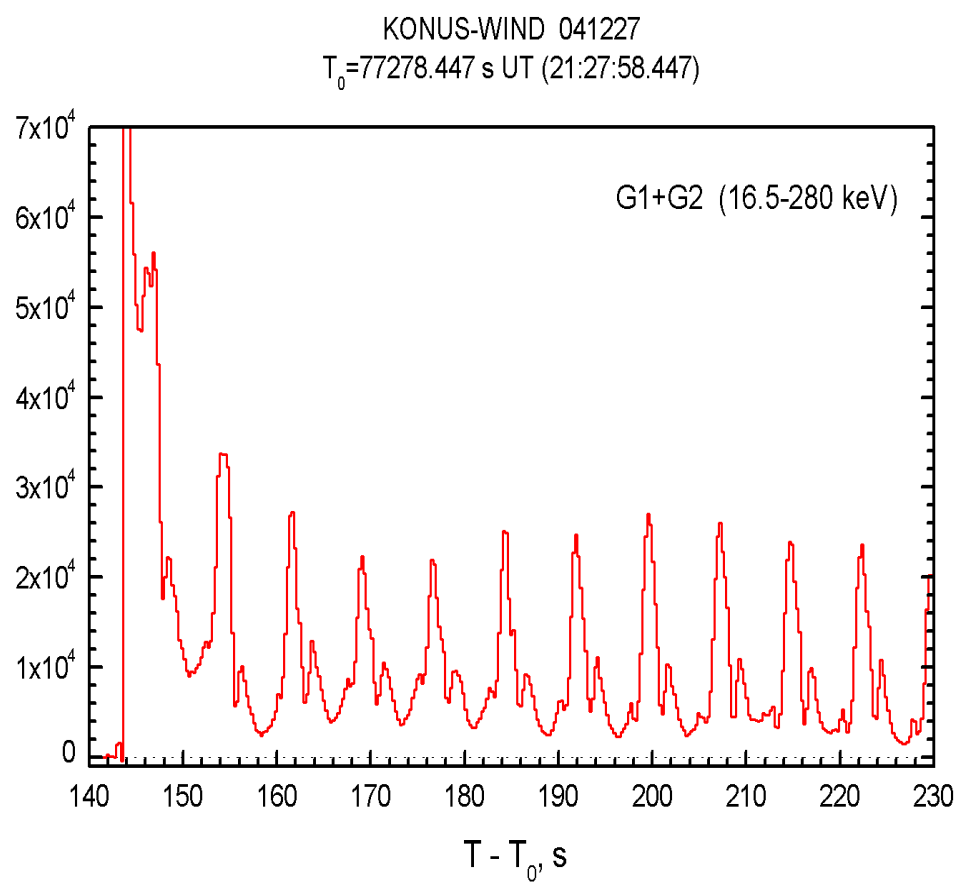
Giant flare SGR1900+14, August 27, 1998 (Nature, 1999, ПАЖ, 1999).

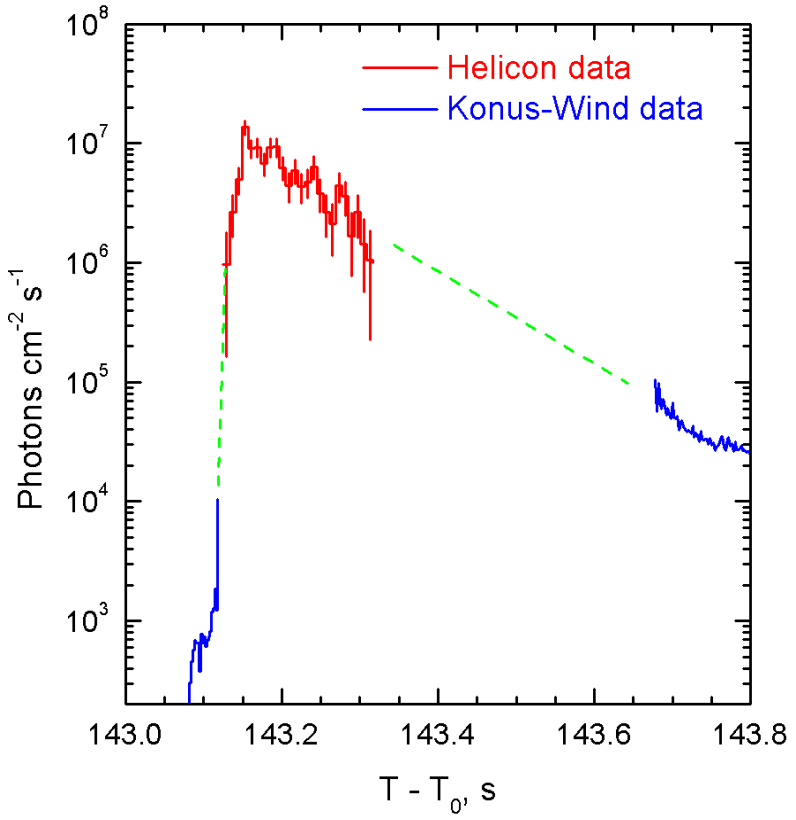
Giant flare SGR1627-41 , June 18, 1998 (Ap.J.L., 1999)

KONUS-WIND and HELIKON: observations of the initial pulse of the giant flare from SGR1806-20 (Astronomy Letters, 2007.).

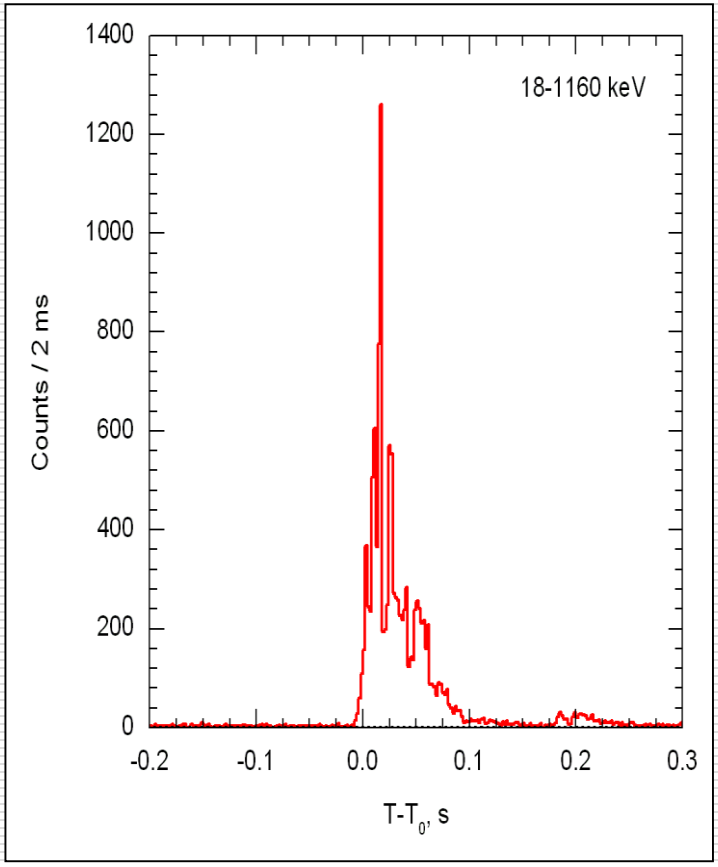


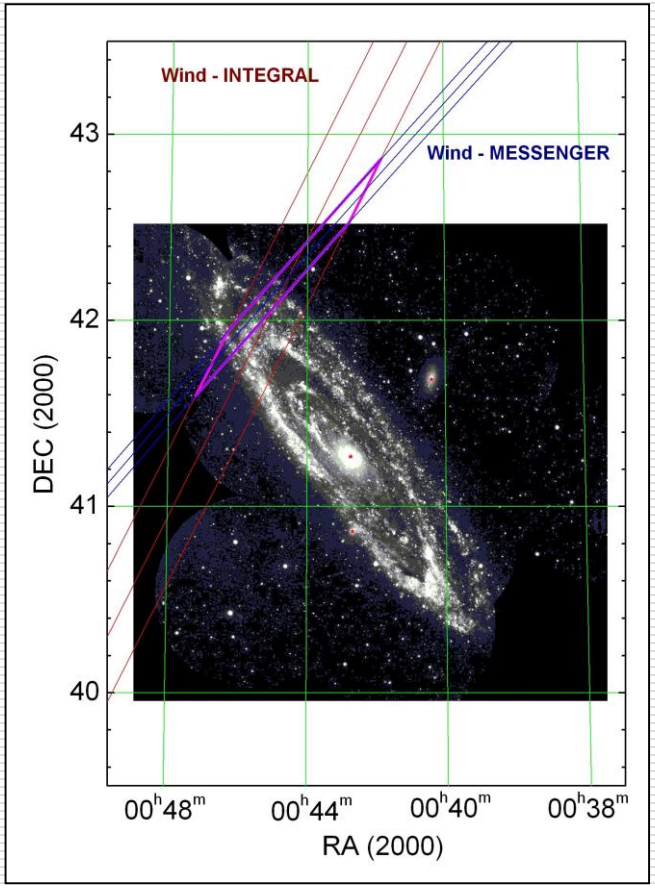
KONUS-WIND and HELIKON («Koronas-F» s/c): observations of giant flare from SGR1806-20, December 27, 2004



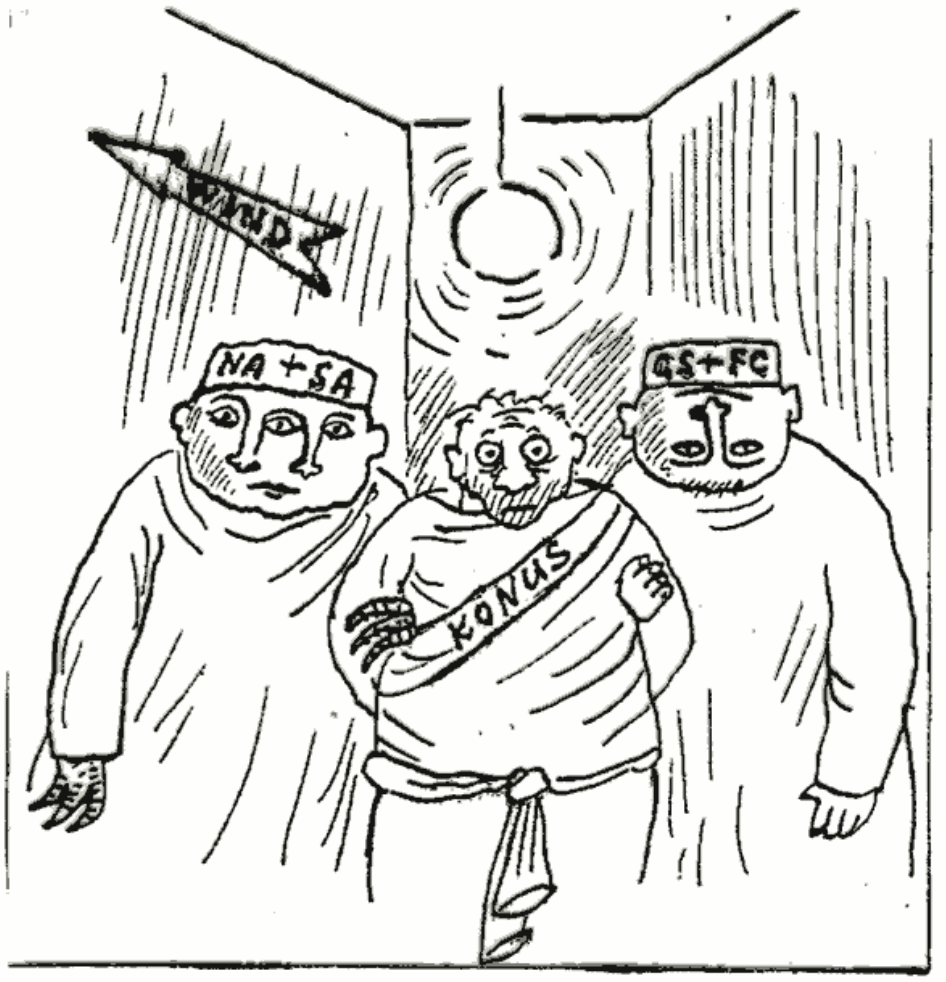


The discovery of giant burst from the neighboring M31 galaxy



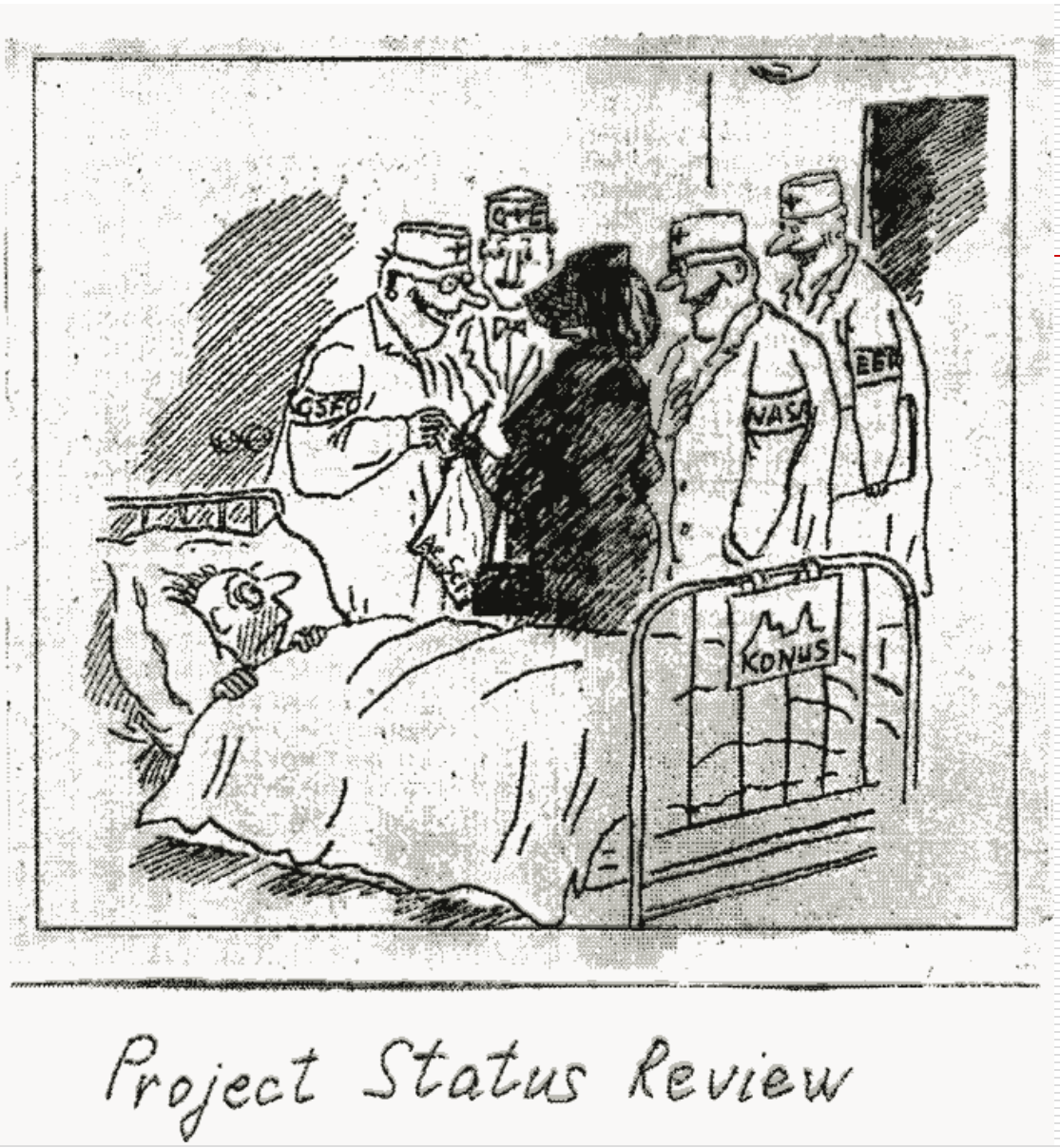


Ap.J., 2008

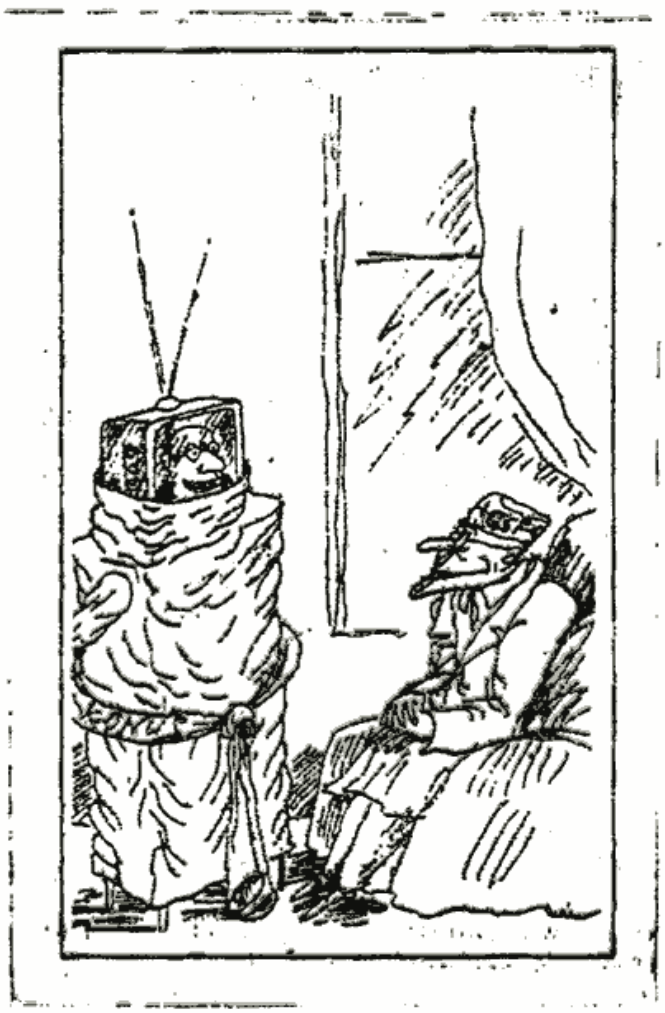


Critical Instrument Review

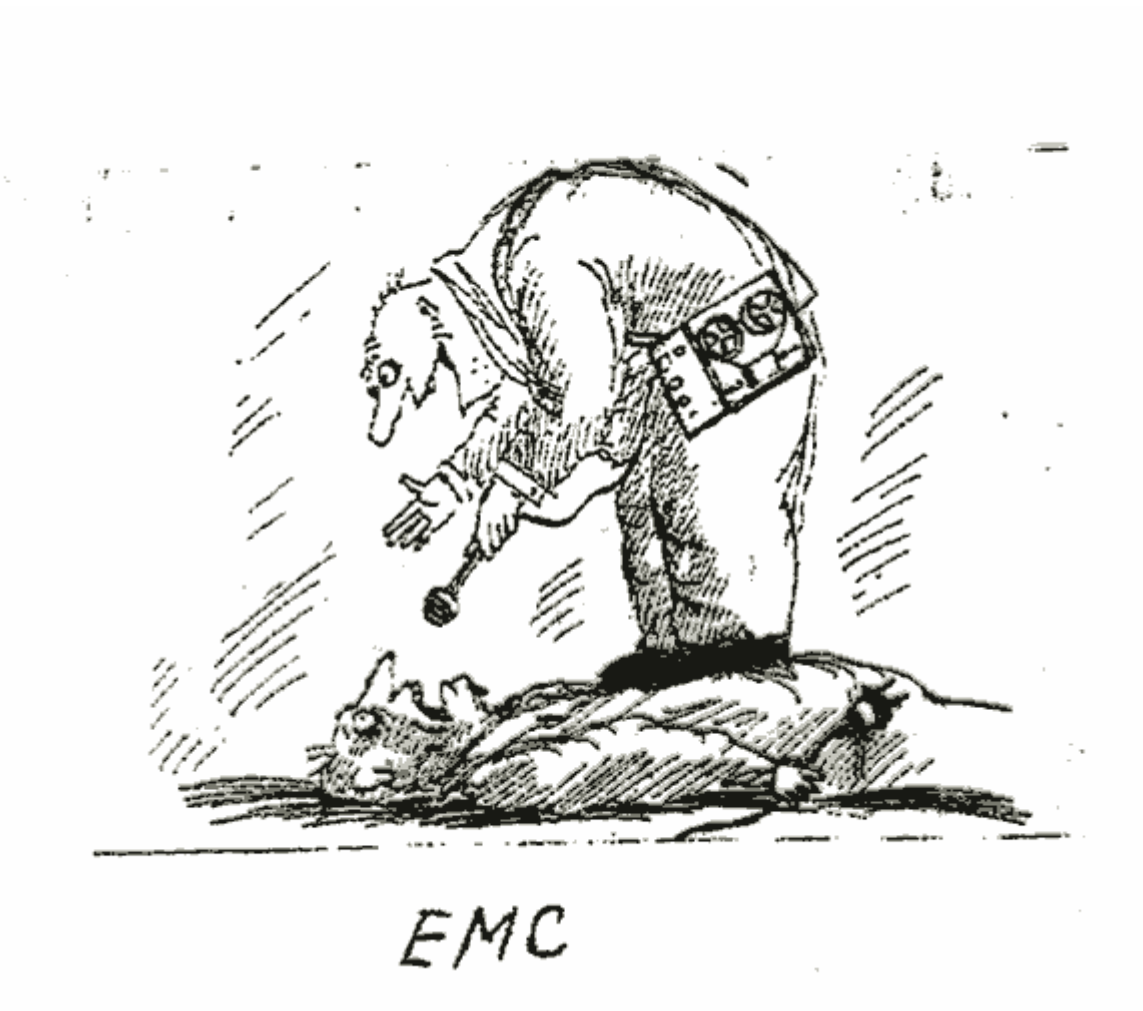
Random vibrations



Project Status Review

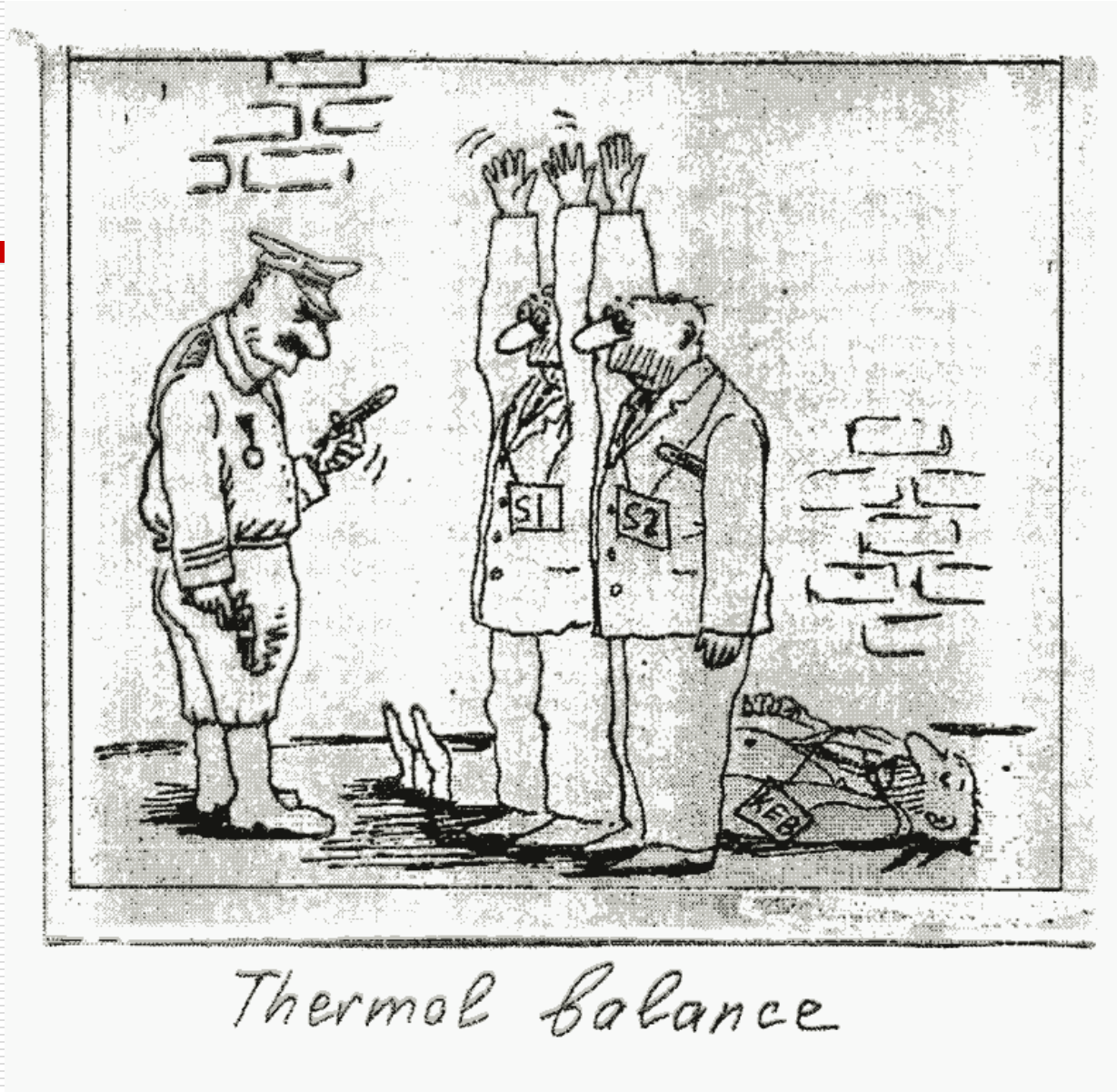


Bench test

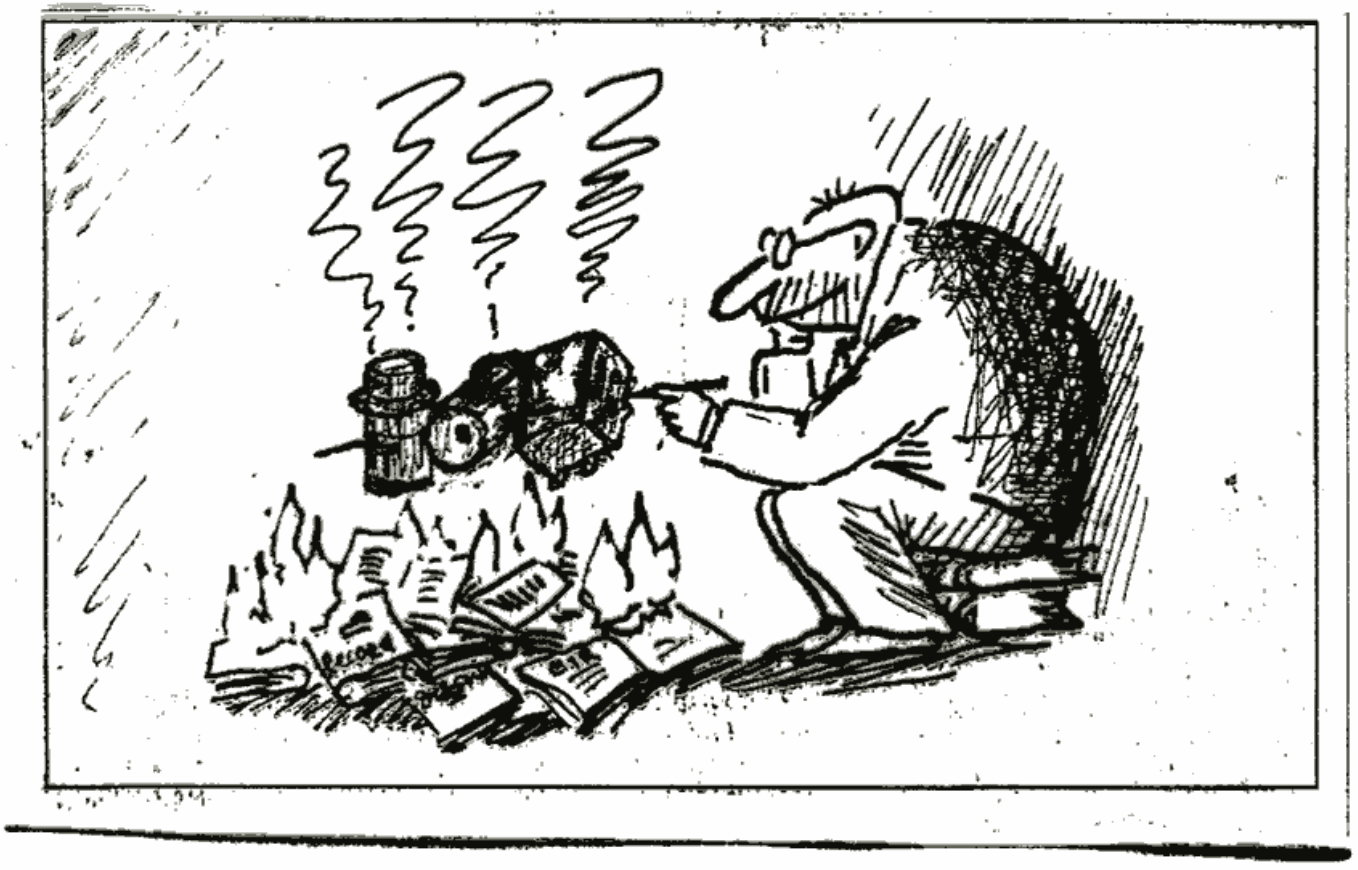

EMC


Thermal
Vacuum

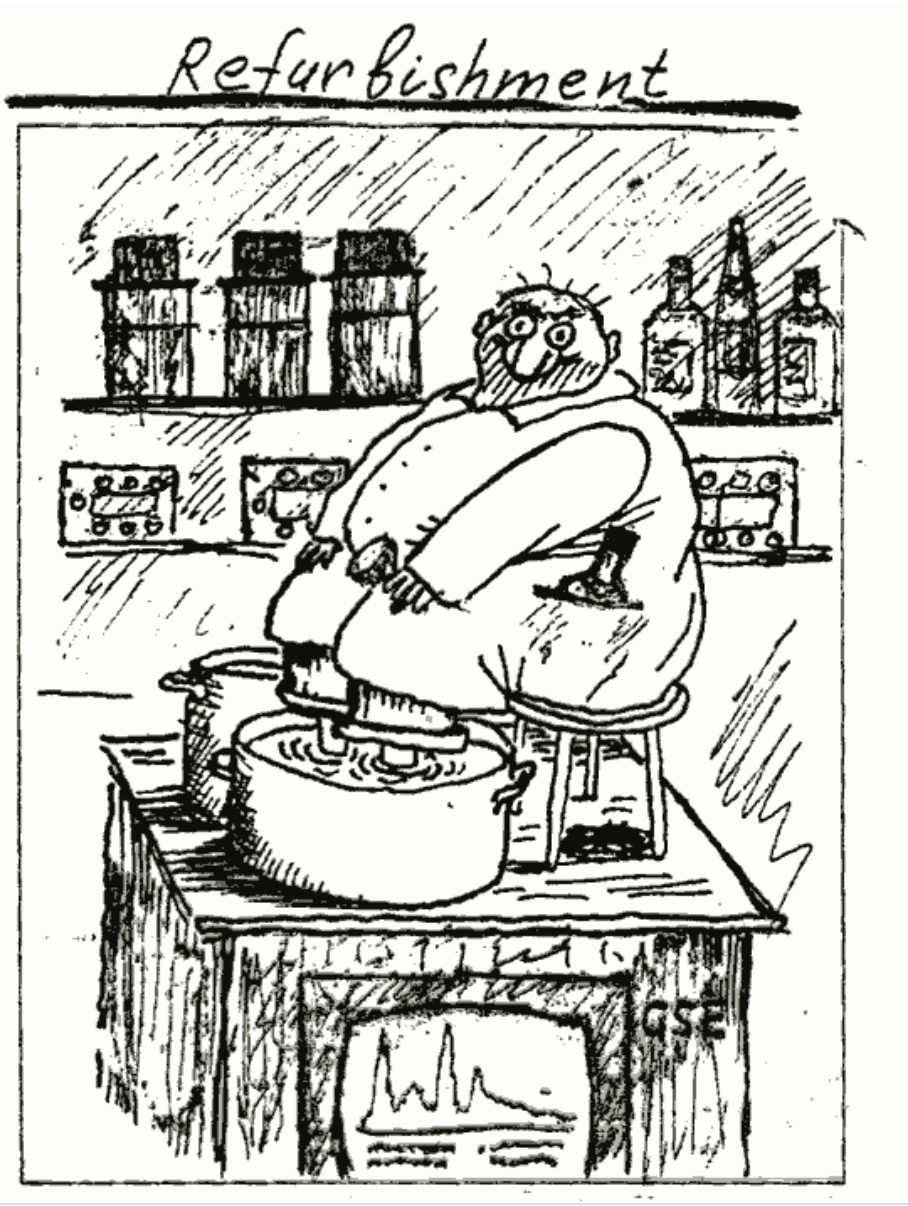

Sine burst



Thermal balance



Bakeout


Refurbishment
GSF