Solar Extreme Events 2007: Fundamental Science and Applied Aspects

SEE 2007: International Symposium
Athens, Greece
Monday 24 September - Thursday 27 September 2007

COSPAR Colloquia

Workshop on Neutron Monitors

'The present and the future of Neutron Monitors'

The S.V.I.R.CO. Observatory (INAF/UNIROMA3 Collaboration): Present status

Athens - September 27, 2007

Relevant monitor and data characteristics

Geographic coordinates 12.47° E, 41.86° N

Altitude Sea level

Threshold rigidity (*year*) 6.27 GV (*1995*)

Instrument 20 NM – 64
(three 3-counter, one 5-counter and one 6- counter units)

Scaling factor 1

Pressure coefficient 0.70 % / hP

Pressure reference level 1009.25 hP

Rate enhancement from 17 to 20 counters 15.6%
(since January 2005)

Present Performance

- **20 BP-28 counters (5 recording sections)**

  (Each counter is equipped with a smart amplifier/discriminator circuit complete with a spectrum stabilizer. This new electronic unit provides the counter with a great immunity against high voltage variations).

  - Sistematic tests of the counters are regularly performed

- **Ambient control:**

  - the observatory is housed in a building with a double air-conditioning system

  - the inner temperature permanently in a range of 23°-26° C

  - relative humidity below 57%

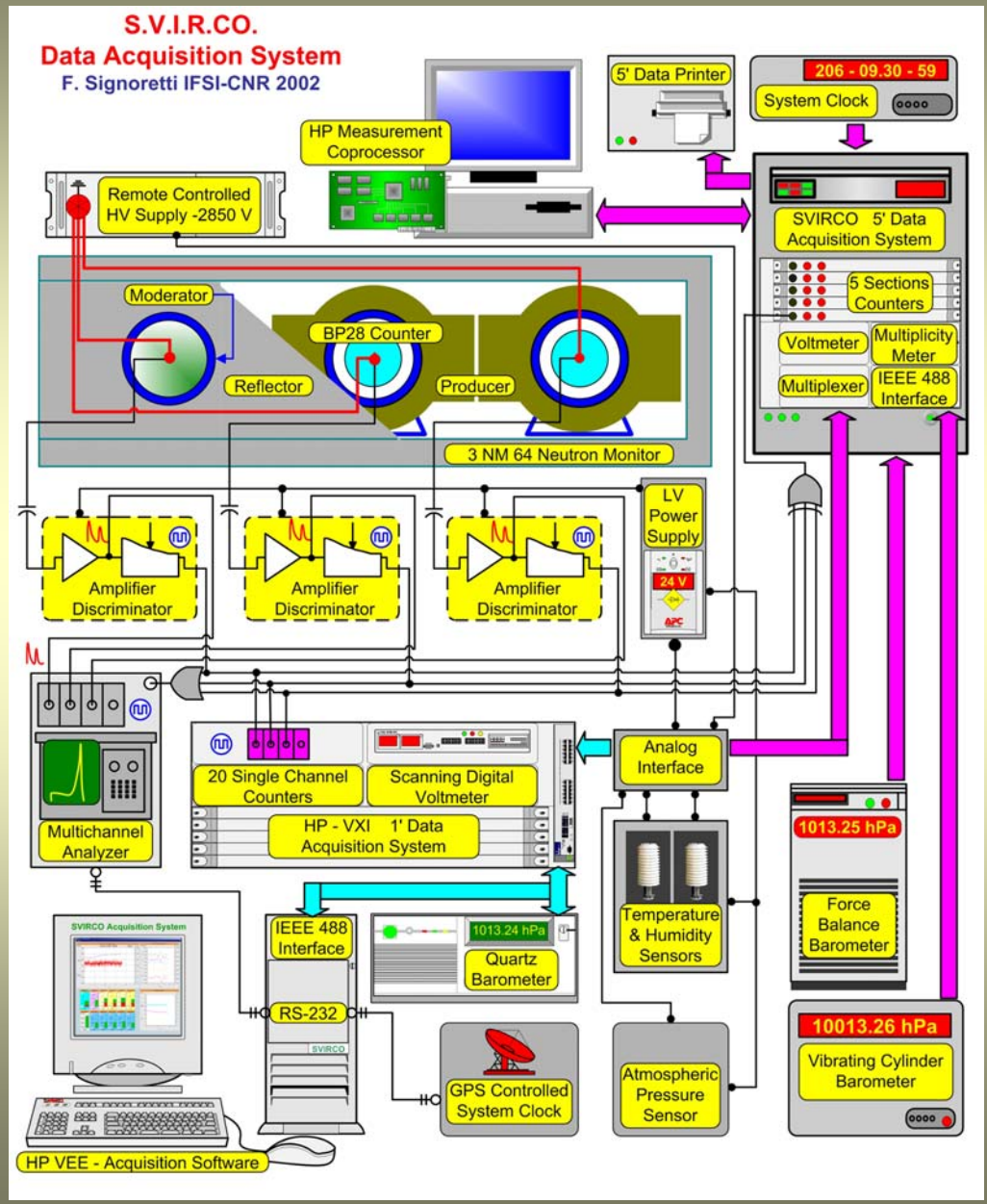
- **High stability quartz clock and GPS receiver**

- **Atmospheric pressure:**

  - 3 barometers with different resolution up to 0.01 hPa and different types of transducer (vibrating cylinder, force balance, quartz)

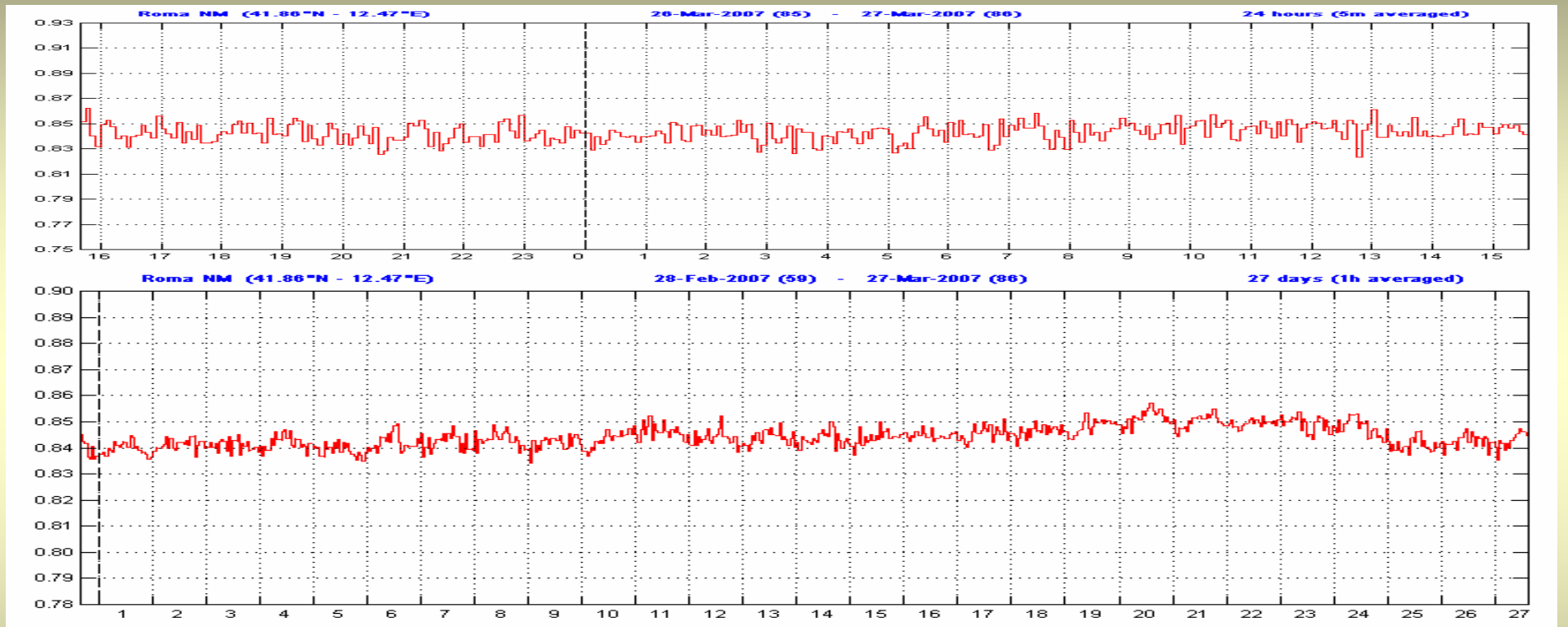
Data Acquisition System

- Two independent systems in use
- Each one controlled by a dedicated computer
- One equipment runs according to a timing of one minute and fulfils the acquisition of the 20 counters separately
- The other individual 5-min rate of each detector section plus multiplicity (from 1 to greater than 8)



Data Products

Real-time plots (5-min, 1-hour records) of pressure corrected data

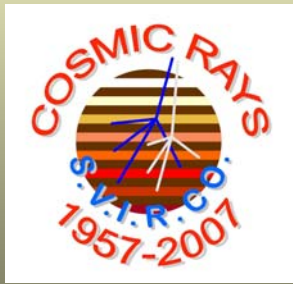


- ***Preliminary daily data check and monthly prompt reports***
- ***Final yearly data reports and pdf on line***
- ***Rome diurnal wave reports and pdf on line***
- ***Data archive 1957-2006 (ASCI files):***
  http://www.fis.uniroma3.it/svirco/pag_2.html

A further instrument upgrade in order to increase the reliability of the short-time data acquisition and the analysis of cosmic ray events:

- ***Barometer with high resolution***
- ***Meteorological station (wind speed, external temperature…)***
- ***Atmospheric electrical field sensor***

- The increased reliability of the short-time data acquisition allows to analyse cosmic ray events with more accuracy.



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