

UNIVERSITY OF MAURITIUS
MAURITIUS RADIO TELESCOPE (F O S)
MAURITIUS CALLISTO SPECTROGRAPH
 RECENT OBSERVATIONS USING THE MAURITIUS CALLISTO SPECTROMETER



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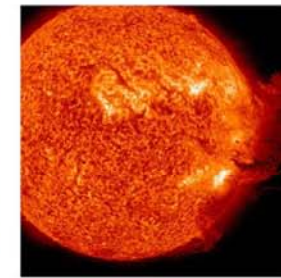
ABSTRACT

Girish Kumar Beeharry, Head MRT
 Gauribidanur Naranappa Rajasekhara, Expert Observer MRT

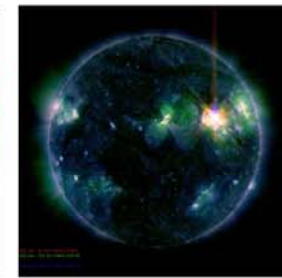
Daily solar flare spectral observations, from 45 to 870 MHz, are carried out by the Mauritius CALLISTO Spectrometer since the 27th April 2009. This instrument is located at the Mauritius Radio Telescope site in Bras d' Eau. On 20th May 2011 another spectrometer was connected to a second log periodic antenna, to monitor the radio Sun in both U – V planes. A selection of the notable flares are presented here. On 24th February 2011, at 0735 UT, a M3-class solar flare erupted. On 7th June 2011, an M2-class solar flare was emitted at 0620 UT, and a S1-class geomagnetic storm ensued. At 0357 UT on August 4th we registered a M9.3 flare. On August 9th at 0805 UT, sunspot 1263 produced an X7-class solar flare; the third, and strongest so far, X-flare of the present Solar Cycle 24. The structure of all the flares, compared with results from other observatories is depicted here. As we head into the maxima of the solar cycle, these observations can guide us in better understanding solar triggered events in space weather.



M3-CLASS FLARE 24-02-2011 AT 07 35 UT (SOHO)



RADIATION STORM ON 07-06-2011 AT 06 41 UT (SOHO)



M9.3-CLASS FLARE ON 04-08-2011 AT 03 58 UT (SDO)



X7-CLASS FLARE, THE STRONGEST SO FAR IN PRESENT SOLAR CYCLE ON 09-08-2011 AT 08 05 UT(SDO)

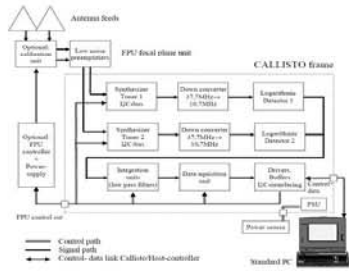
Above images are from the SOLar and Heliospheric Observatory & the Solar Dynamics Observatory in space



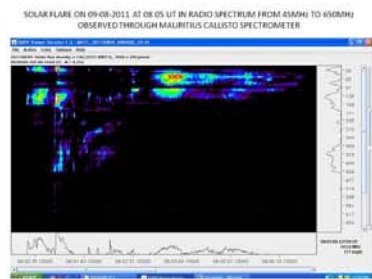
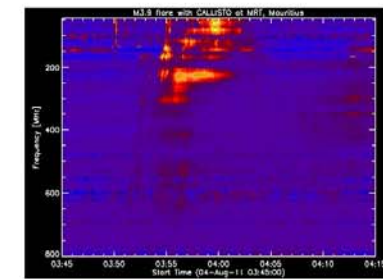
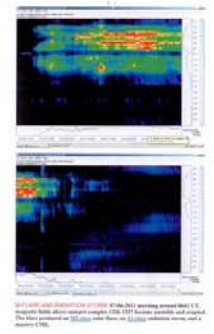
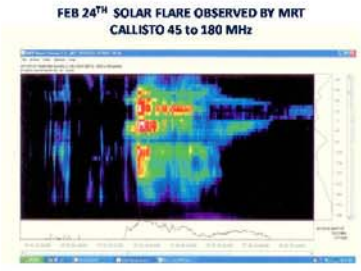
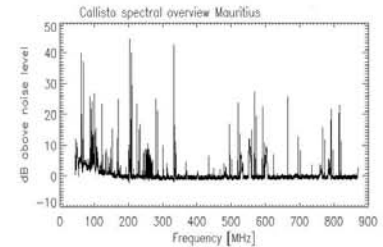
Broad band logarithmic periodic antenna at MRT observatory in Mauritius. The antenna was built out of standard aluminum profiles in the local workshop. Frequency range goes from 20 MHz up to 800 MHz in fixed vertical position. Vertical tubes on both sides are made of PVC to mechanically support long, heavy dipoles.



The CALLISTO Spectrometer is on the left side of the table (below 'TOBLERONE' chocolate) power supplies just behind the monitor with keyboard and PC on the right.



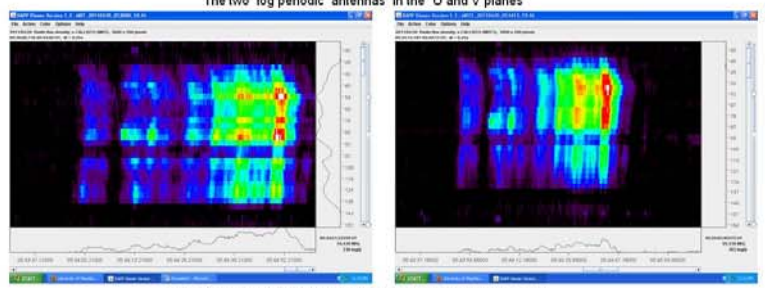
THE CALLISTO HARDWARE SIGNAL PATH



Above spectrograms are from the Mauritius CALLISTO

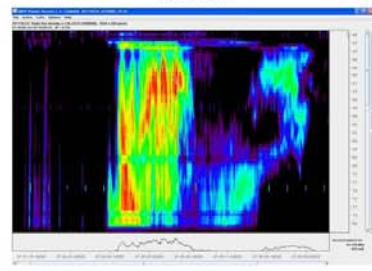


The two log periodic antennas in the U and V planes

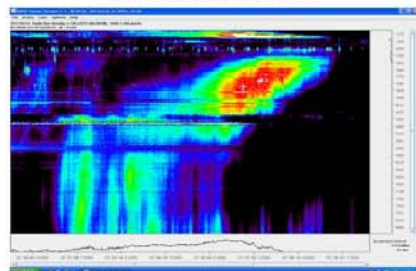


Type 3 flares in U (left) and V (right) planes on 20-04-2011 at 05 44 UT

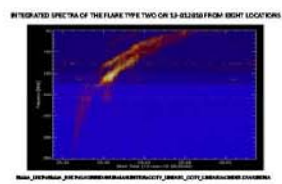
HUMAN



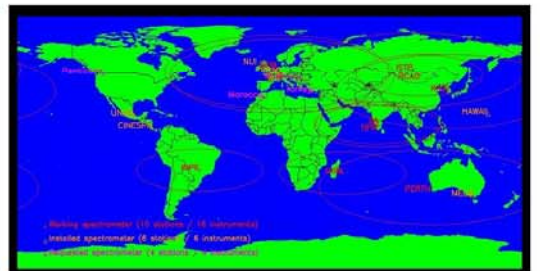
BLEN7M 175 to 870 MHz



24-02-2011 flares from the log periodic tracking HUMAN (Belgium) and the 7 m dish BLEN7M (Switzerland) CALLISTO



RADIO OBSERVATIONS OF WEAK ENERGY RELEASES IN THE SOLAR CORONA
 R. Kumar, V. Aravamudan, Ramesh V. Rajeev, D. A. Srinivasan, J. Sankaranarayanan
 ABSTRACT
 We report observations of weak energy releases in the solar corona in the form of the Type 3 flares and their spectral activity during the solar cycle 24 and 25. The spectral observations show the energy released in the 45-135 MHz range in the form of the Type 3 flares observed with the quadrifilar heliographic antenna for the coronal region was located at a radial extent of 1.2 PA, in the solar corona. The estimated peak frequency spectrum of the flare at 17 MHz is 10⁻¹⁶ W. The average energy released in the coronal region of the flare was 10⁻¹⁶ J. The estimated peak frequency spectrum of the flare at 17 MHz is 10⁻¹⁶ W. The average energy released in the coronal region of the flare was 10⁻¹⁶ J. The estimated peak frequency spectrum of the flare at 17 MHz is 10⁻¹⁶ W. The average energy released in the coronal region of the flare was 10⁻¹⁶ J.



WORLD WIDE CALLISTO NETWORK

