

HALEAKALA NEUTRON MONITOR REDEPLOYMENT FOR SOLAR NEUTRONS AND HIGH ENERGY COSMIC RAYS OBSERVATIONS. V. Bindi¹, C. Consolandi¹, C. Corti¹, J. Ryan² and W. Nuntiyakul³,
¹University of Hawaii at Manoa (bindi@hawaii.edu, cconsola@hawaii.edu), ²University of New Hampshire (james.ryan@unh.edu), ³Chiang May University (fhon188@hotmail.com).

Abstract: Solar Energetic Particles (SEPs) are particles accelerated by the Sun during explosive events such as solar flares and coronal mass ejections. During strong solar flares, the Sun can also emit energetic neutrons, called Solar Neutron Particles (SNPs), created in interactions of SEPs with nuclei in the Sun's atmosphere. Since SNPs are not affected by the interplanetary magnetic field, they retain direct information about the nuclear reactions happening near the SEP acceleration site. When an SEP or an SNP event occurs, it may initiate a cascade of secondary particles in the Earth's atmosphere that can be detected on the ground by neutron monitors (NMs), the so called ground level enhancement. NM stations are distributed across the world, working together as a giant spectrometer, known as the global NM network. Nevertheless, there is still a huge gap over the equatorial Pacific for detecting high energy galactic cosmic rays (GCRs) that is also optimum for SNP detection. We plan to extend the coverage of the world wide NM network, for SNP and GCR observations by redeploying the Haleakala NM station (HLEA) on Maui, in time for the upcoming solar maximum (around 2025). The initial phase of the project has already started. Status of the upcoming NM detector and future work will be presented.