

Inter-Division E-F-G WG: Impact of Magnetic Activity on Solar and Stellar Environments

Report for the period August 2018 – April 2020 by WG chair Heidi Korhonen

Introduction

The Working Group *Impact of Magnetic Activity on Solar and Stellar Environments* was formed in the IAU General Assembly in Beijing, 2012. The main aim of the WG is to facilitate interdisciplinary science in understanding the impact of solar and stellar magnetic activity on their space environments and orbiting (exo)planets. This is done by bringing together theorists, modellers and observers working in the relevant fields of astronomy.

Originally the WG was under Division E. However, the activities and interests of this working group have a large overlap also with the interests of Divisions F and G. Therefore, we proposed to make the working group inter-division WG shared between divisions E, F and G. This proposal was accepted in the IAU EC meeting in Rome in May 2019.

Overview of the activities in 2018 – 2020

Our WG members have always been actively taking part in organising IAU sponsored events. In IAU General Assembly in Vienna in 2018 our WG members were in the SOC of two events: Symposium 345 *Origins: From the Protosun to the First Steps of Life* (co-chaired by our WG member) and Focus Meeting FM9 *Solar Irradiance: Physics-Based Advances*. Additionally, in 2019 one of our WG members took part in organising IAU Symposium 354 *Solar and Stellar Magnetic Fields: Origins and Manifestations*.

The most important continuous conference series in the field of cool star research is the Cambridge Workshop on Cool Stars, Stellar Systems and the Sun, or for short Cool Stars. This conference was organised for the first time in 1980 in Cambridge, Massachusetts. Over the years this now bi-yearly conference has grown and currently attracts some 500 scientists and it is considered the main meeting place for people working in cool stars. The next Cool Stars meeting, Cool Stars 21, was supposed to be organised in Toulouse, France in June 2020, with two out of the three main organisers being from our WG, and additional WG members in the SOC. Unfortunately, due to the COVID-19 pandemic this meeting had to be postponed to 2021. Still, we are looking forward to an exciting meeting with a lot of focus on the science topics that are of interest to our WG members.

Future outlook

Hopefully in 2021 there will also be IAU events co-organised by our WG members. Several proposals for the IAU organised events in 2021, both symposia outside GA and also events during the GA, have SOC members from our WG. There are five submitted symposia and two focus meeting proposals with our WG members in the SOC. Two of these proposals are in the exact topic of the WG and led by our members: Symposium *Winds of stars and exoplanets*, and Focus Meeting *Beyond the Goldilocks zone: the effect of stellar magnetic activity on exoplanet habitability*. Naturally at the time of writing this report we do not yet know which proposals were accepted, but we hope that at least some proposals with involvement of our WG members will be accepted for 2021.