

Fellow: Neel Savani

Email: neel.savani02@imperial.ac.uk

Host: Professor Kanya Kusano

Host Institution: Solar Terrestrial Environment Laboratory (STELab), Nagoya University.

I undertook a 7 month JSPS Short-term Post-doctoral Fellowship with Professor Kusano-san at Nagoya University, from October 2010 to May 2011. Prior to arriving at STELab, I had just completed my Phd from Imperial College London. As I had also completed my undergraduate at Imperial College, the opportunity for a change of scenery was one that really excited me. Prior to applying for the fellowship, I had worried a little about finding a place to live, dealing with the language barrier, general transportation of getting to and from work etc... but as it turned out, I was worrying unnecessarily. As soon as I notified Prof. Kusano-san of my successful application and start date, he had arranged accommodation within the university complex for my duration. Upon arrival into Nagoya, I had a postdoc waiting at the university to let me into my new accommodation with details and maps of the nearest supermarkets, shops etc. And within the first three days of arriving, Prof. Kusano-san had taken a full day out of his schedule to take me around Nagoya to get my foreign residence card, bank account and setup a seminar in Kyoto University for me. By day four, everything was organised in an impeccably efficient manner, such that I only had get over my jetlag. Also JSPS provided the first three months salary in advance, which meant I never had the inconvenience of using a british credit card and changing currency.

The language barrier was an interesting challenge, but not particular inconvenient- just exciting if you are willing to venture off-the-beaten track and be a little open minded about what food you may get served. In fact, ordering food is much less tricky now in the age of a digital camera and the plastic mock-ups found in nearly all the windows of restaurants. For those wanting to learn Japanese, it is not only a wonderful skill to learn, but will make life easier for those staying longer term. For this, it would be useful to arrange your fellowship start dates around the beginning of the university academic year so that you can join the classes within the university designed for foreign researchers and students. (perhaps not all universities provide this facility, so it is better to check in advance).

I felt very fortunate to receive such amazing hospitality while trying to settle into my new life in Japan. This made the transition very simple and stress-free. The group within STELab were especially helpful with their guidance from the simple (e.g. how the rice cooker works) to the more complex (e.g. intricacies of buying a hanko). The group secretaries within the university were always at hand for any question I had, they were also a brilliant source of local information during lunchtimes. I feel very lucky to have seen some of the many beautiful sights in Japan. It has been especially nice to be able to visit places like Kyoto during different seasons of the year.

During my studies I investigated the morphology of coronal mass ejections, CMEs, as they propagate between the Sun and the Earth. I had predominately studied results from the wide-angle cameras (the HI instrument) on the STEREO mission, but I also studied the evolving shape from in situ measurements. I came to STELab under a JSPS short term fellowship to verify some of the assumptions used in my findings. As such I have spent my seven month visit learning about heliospheric simulations and working alongside Professor Kusano-san and Shiota-san (from RIKEN).

My research at Nagoya University first started with completing my analysis of the 2D cross-section of the CME morphology as estimated from 1D in situ measurements. This work incorporated many assumptions that related the shape and structure of a CME to Earth's magnetosphere. In particular, it was suggested that if the shock stand-off distance and the inflow Mach number were known then the vertical size of the CME (perpendicular to the flow direction) can be estimated. These assumptions may be sufficient for planetary magnetospheres, but it is less clear if they remain applicable to a structure that has a drastically different shape or one that evolves over different heliospheric distances.

This work is still ongoing, so I have no doubts that further collaborative research will follow, and that the friendships I have formed will continue for many more years. I greatly appreciate the opportunity

to work within the STELab group, and I was very sad to leave. Having remained in Japan during the great March 11th earthquake and tsunami, I felt particularly sad when my fellowship came to an end two months later. My thoughts remain with my friends, colleagues and the Japanese people. Given the chance, I would not hesitate to go back. Finally, I like to thank JSPS London for the honour and opportunities of the JSPS short-term Post-doctoral Fellowship.



Top: Social STELab football team bottom left: demonstrating my love of Japanese tea. Bottom middle: at the solar wind observatory at the base of Mt Fuji. Bottom right: the Torii at Miyajima.