



## RSGB 2021 Online Convention keynote presentation

### Professor Cathryn Mitchell, M0IBG “Radio Technology and Space Science – A Perfect Partnership”

Cathryn answered a number of questions in the live chat after her presentation but unfortunately we ran out of time for all of them. She has very kindly provided written answers to those extra questions. We have provided the questions below as they were asked on both live streams.

#### **Q. When the Earth’s magnetic field reverses, is there a period when the protection from Sun’s radiation diminished or disappear? Is there a risk to man’s technology. Terry G3VFC**

A. The Earth's magnetic field is indeed changing but I hope it will be a long time before it reverses. <https://www.ncei.noaa.gov/news/tracking-changes-earth-magnetic-poles>

But a really interesting study on Mars tells us what happens when we do not have the protection of the magnetic field. <https://www.nasa.gov/press-release/nasa-mission-reveals-speed-of-solar-wind-stripping-martian-atmosphere>

#### **Q. I wonder if Cathryn has had any experience communications working with scientists from the field using radio science less directly in particle accelerators. Mark East Anglia**

A. Mark/East Anglia - most of the scientists I know are working in space or atmospheric science but I know a few in other fields who are radio amateurs. It’s amazing how transferable the radio skills are and also, how much apparently disconnected topics need radio skills and knowledge, for example WiFi and satnav and GPS timing.

#### **Q. HAMSEI-UK does it exist?**

A. There was a HAMSCI-UK conference held in 2017. Now that the US HAMSCI conferences are streamed online we can all share in the same discussions together. So we would see the UK now as being a part of the US group, <https://hamsci.org/>  
Maybe we will hold another meeting in the UK again.

#### **Q. Would radio emission for ‘Hot Jupiters’ around other stars (Exoplanets) be detectable. Rodney Buckland**

A. That's a great thought. Yes indeed, and as we bring on new lower frequency radio telescopes I hope we will discover more and more on this topic. How exciting to hear more from the exoplanets. For recent results in this area take a look at work by Christine Lynch, for example Lynch, C. and Murphy, T. and Kaplan, D. and Ireland, M. and Bell, M. 2017. A search for circularly polarized emission from young exoplanets. Monthly Notices of the Royal Astronomical Society. 467 (3): pp. 3447-3453.

#### **Q. Can she recommend a paper which demonstrates the value of WSPR in science. M0IUR**

A. Yes lots of relevant papers can be found here: <https://hamsci.org/publications>. Also, Sam Lo (who I mentioned in my talk) is preparing his WSPR work for publication.