Kathy Whaler became President of the International Association of Geomagnetism and Aeronomy (IAGA) at the IUGG General Assembly in Melbourne, 2011, after four years as Vice-President (2007-11), and Executive Committee member (2003-7). She has been involved in IAGA activities throughout her career, presenting at her first Scientific Assembly in Edinburgh in 1981 whilst still a research student. She Chaired the Scientific Programme Committee for the 1999 IUGG General Assembly in Birmingham, has been a member of the IUGG General Assembly Site Selection Committee, and the IUGG Resolutions Committee.

Whaler was a PhD student at the University of Cambridge, and stayed on in a post-Doctoral role for two years before joining the University of Leeds in 1983 as a lecturer. In 1994, she moved to the University of Edinburgh to take up the Chair of Geophysics there. Sabbaticals have taken her to NASA's Goddard Space Flight Center, Harvard University, University of California at San Diego (where she was a Green Scholar), Victoria University of Wellington, and Göttingen University (as Gauss Professor), funded by the Fulbright Foundation, NASA, the Cecil H and Ida M Green Foundation, and Göttingen Academy of Sciences.

Whaler's research uses geomagnetism to study the dynamics of the Earth's core and deep mantle, especially though inverse methods, such as inferring the advective flow of liquid iron at its surface that explains the way the geomagnetic field evolves with time. She has also researched the magnetized crust of Earth, Mars and Moon, in particular, finding magnetization distributions that model crustal anomaly data. These studies have used orbiting satellite data, geomagnetic observatory and repeat station records, and aeromagnetic surveys. She also undertakes magnetotelluric fieldwork to infer the resistivity structure of the crust and upper mantle, currently and for many years over rifted regions of Africa, and previously the Hikurangi margin of New Zealand and Skye in Scotland, wherever possible in conjunction with other geophysical techniques to strengthen the interpretation and inferences that can be drawn. She has published over 100 research articles and reports.

Besides her roles within IUGG and IAGA, Whaler has taken on many administrative and other responsibilities, including membership of ESA's Swarm Mission Advisory Group, NERC's Science Innovation and Strategy Board, AGU's Fleming Medal and GP Section Awards Committees, has Chaired the UK's Committee of Heads of University Geoscience Departments, the International Peer Review of Danish Space Science, and has judged the Nature/NESTA Awards for Creative Mentoring in Science, the Athena SWAN awards, and the Glaxo Wellcome-Association of British Science Writers' awards.

Whaler's contributions have been recognised through Fellowship of the American Geophysical Union, the Institute of Physics, and the Royal Society of Edinburgh, invitations to give the Bullerwell Lecture and the Gunning Victoria Jubilee Prize Lecture, and the naming of a minor planet (asteroid) after her. She was the President of the Royal Astronomical Society, the main Learned Society for solid Earth geophysics in the UK, from 2004 to 1006.