

August 18, 2022

Commissioner Clayton Christian
Office of the Commissioner of Higher Education
560 North Park Avenue
Helena, Montana 59620-3201

Dear Commissioner Christian:

This is a request for the Board of Regents to confirm the recommendation of an honorary degree to Dr. Alexander “Sandy” MacDonald, to be awarded at Montana State University’s (MSU) commencement ceremony in the Fall 2022. Faculty Senate will vote on this honorary degree recommendation on August 31, 2022.

Dr. Alexander “Sandy” MacDonald (Honorary Doctor of Humane Letters)

Dr. Sandy MacDonald received his undergraduate degree from Montana State University in 1967. Courtesy of his Air Force ROTC commission, Sandy studied meteorology at Washington University in St. Louis, MO. After completing active duty in 1971, he earned both a masters degree and doctorate degree from the University of Utah, in meteorology.

Dr. MacDonald dedicated his life to federal public service. He served as the Chief Science Advisor for National Oceanic and Atmospheric Administration (NOAA)’s research line, and Deputy Assistant Administrator from 2006 to 2012. He was Director of NOAA’s Forecast System Laboratory from 1988 to 2005. During his devoted career, he had many accomplishments and contributions which benefited NOAA, the nation and the world.

An extraordinary talent, he was extremely well qualified with the requisite experience and innate skills to foster new heights of NOAA’s relevance and achievement. For much of the time, he worked long hours maintaining leadership and productivity at the Forecast Systems Laboratory in Boulder, CO as well as being on scene at NOAA headquarters in Washington, D.C.

Dr. MacDonald is also the inventor of NOAA’s “Science on a Sphere”, an educational interactive exhibit, in over 130 museums and educational science organizations worldwide. Science on a Sphere vividly displays environmental data on a globe-like screen, making it easier than ever for people to visualize and understand changes to our atmosphere and the oceans. Science on a Sphere can show what Earth looks like from space and lets audiences see pollution trends, global cloud imagery, hurricane patterns, ocean temperatures and currents, plate tectonics, and even the lights produced by cities and wildfires.

Furthermore, he worked with Vice President Al Gore to start the GLOBE Program in 1994. Sandy has been the recipient of four Presidential Rank Awards and a Gold Medal. He has written over 100 publications throughout his remarkable career. In 2016, he published an article in Nature Climate Change, titled “Future Cost Competitive Electrical Systems and Their Impact on U.S. CO2 Emissions” that was ranked in the 99th percentile of impact by Altimetric. This article demonstrates that U.S. carbon dioxide emissions could be reduced by up to 80% by 2030 with implementing of a High Voltage Direct Current transmission network. This

solution to greenhouse gas emissions also could be implemented now with existing technology and would be feasible in other major economies such as Europe, China, and India.

Dr. MacDonald served as a NOAA senior executive since 1990, and was President of the American Meteorology Society (AMS) in 2015. He retired after more than 40 years of federal service in January of 2016. He worked with Spire Global from April 2016 to 2020, becoming their Chief Science Officer, and led a group developing new global weather models and advanced energy solutions. He retired again in 2020, to write a book proposing climate solutions, based on his research on the continental availability of solar and wind energy, with essential investment in continental-scale super-grid networks.

I want to share the high recommendation of one of his nominators, *“Sandy has worked very creatively in improving scientific modeling capabilities, in developing a really fascinating approach to communicating the science of the Earth system and the human role in changing the environment, and in making clear how a high-voltage/direct-current (HVDC) network could greatly improve the likelihood of really cutting U.S. and international emissions and moderating human-induced climate change. Any of these accomplishments would be a highlight of a normal scientific career—Sandy has done them all, and this is not to mention all the rest of the accomplishments of those while he was the leader of NOAA’s Environmental Research Laboratories and what he did earlier in his career.”*

In closing, Montana State University wholeheartedly supports the recommendation of Dr. Alexander E. MacDonald for an honorary doctorate degree from Montana State University. Thank you for your thoughtful consideration as the students, faculty and staff of Montana State University would be so proud to honor him at our upcoming Fall 2022 commencement.

Sincerely,



Waded Cruzado
President