

MAGNETIC FIELD MEASUREMENTS ON THE LUNAR SURFACE: LESSONS LEARNED FROM APOLLO AND SCIENCE ENABLED BY FUTURE MISSIONS. P. J. Chi¹, ¹Department of Earth, Planetary and Space Sciences, University of California, Los Angeles, California; pchi@igpp.ucla.edu.

Different from the magnetic field measurements by orbiting spacecraft, magnetometers on the lunar surface can measure at fixed locations on the lunar surface, avoiding the spatiotemporal ambiguity intrinsic to spacecraft observations. The magnetic field measurements on the lunar surface can provide useful information for magnetic sounding of the lunar interior, the electromagnetic waves associated with Moon-plasma interactions, and the space weather environment that can aid the planning of future manned operation on the Moon. The only surface magnetic field measurements made so far are those provided by the U.S. Apollo missions and the Soviet Luna missions in the late-1960s and 1970s, and only the Lunar Surface Magnetometer (LSM) data from the Apollo 12, 15, and 16 missions have been restored for investigations today. This study summarizes the scientific research based on Apollo LSM measurements to shed light on the scientific investigations that can be made by future lunar surface missions, such as the International Lunar Network. Also discussed are approaches to deploying magnetometers on the lunar surface by small landers or impactors.