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Report on the research trip to the NAMRIA Magnetic Observatory and the Manila Observatory (Manila, Philippines)

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Period of stay: 2026 03 22 – 2026 03 26

Location: Muntinlupa City & Quezon City, Philippines

We visited the NAMRIA Magnetic Observatory located in Muntinlupa City, Philippines to setup the repaired magnetometer, alongside our partners in NAMRIA. Afterwards, we then visited the Manila Observatory to discuss the details regarding our ongoing collaborations. Aside from me, Kato Akihiro (Kyushu University) and Shuji Abe (Kyushu University) also went. In NAMRIA, we were assisted by Lt. Marck Daniel Santos, the chief of the magnetic observatory, as well as the other staff present. In the Manila Observatory, we met with Dr. Sheldon Niño Uy, Fr. Daniel McNamara, S.J., Mr. Clint Bennett, and Ms. Lalaine Anne Asares.

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We began the setup and repair in the morning. Our partners from NAMRIA provided us transport from the hotel to the magnetic observatory. The magnetometer we were setting up again was damaged by lightning, and our partners had sent it back to Japan for repairs. While setting up the magnetometer, we noticed that the cable left behind connecting the magnetometer to the amplifier was damaged, presumably by the lightning strike. We decided to replace that cable as well. However, there was a complication. To protect against the elements, that cable was laid through pipes that were then buried underground. We were unable to extract the cable from those pipes, so it was decided that new pipes would be laid out and buried for the new cable, and a new connection drilled into the hut for the amplifier. We then finished the initial calibration. The calibration would be finished the next day, since we first needed to know the local midnight D values.

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We finished the initial calibration on this day. Our partners in NAMRIA already started digging up the new path for the new cable. After some consideration, we decided to also replace the other undamaged cable connecting the magnetometer to the data logger, just in case it gets damaged in the future. We decided to replace it at that time so that it could be laid out with the other cable at the same time. Afterwards, we had a courtesy call with Cdre Carter Luma-ang, the director of the Hydrography Branch of NAMRIA, and Cdr Aaron Andro Ching, the assistant director. The Hydrography Branch in charge of the magnetic observatory.

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We visited our colleagues at the Manila Observatory, mainly discussing the status of the Philippine magnetometers, the MoU, and data sharing. We also arranged the transport of the FM-CW radar back to Japan. We decided that the laboratory will prepare a data server containing the data from the Philippine magnetometers that we will then make accessible to the Manila Observatory. During our discussions, our colleagues expressed concern on the quality of the DAV station, since the surrounding area is being developed. We also discussed the status of the CDO and CEB stations, which both need to be relocated due to development.