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Development of a new data calibration for the LEPe instrument on the Arase satellite

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We are now developing a new data calibration method for the LEPe (Low-energy particle experiments - electron analyzer) instrument onboard the Arase satellite. The calibration method currently being applied is built based on LEPe measurement data until the end of 2020. Since 2021, the detection efficiencies of the electron channels have decreased relatively to that of the background channel. This efficiency difference is probably due to degradation of the electron channels, as the electron channels receive a higher influx of electrons compared to the background channel. To take the time variation of detection efficiencies into account, a newly developed calibration method introduces a time parameter to the detection efficiency model. In this presentation, we describe the details of the new calibration method, which is useful for scientists to know accuracy and limitations of physical quantities obtained by the LEPe instrument.