A magnetometer design for the Kua-Fu mission

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The magnetometer experiments on-board the Kua-Fu A and B spacecraft must measure the magnetic field vector with high levels of precision and time resolution while keeping resources to a minimum. We describe a dual sensor fluxgate magnetometer design meeting these requirements featuring digital detection of the sensor signal. The instrument measures three orthogonal components of the magnetic field in a 0-32Hz bandwidth from two sensors, based on Double Star and Venus Express design heritage, and located at the end and inwards from the end of a rigid boom. We consider how the contrasting in-situ environments of the Kua-Fu A and B spacecrafts impact on the design parameters of the sense electronics and discuss the prospect of a common magnetometer solution for both types of spacecraft.