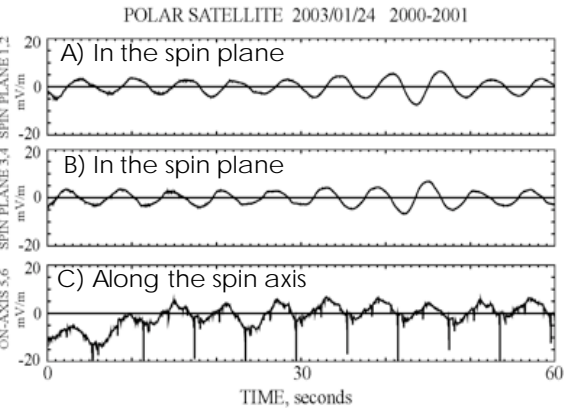


MOTIVATION

- Uncertainty in the parallel E-field: usually greater than measured value in existing designs
- Closure of many significant science questions hampered by the lack of accurate 3D E-Fields (Shock, reconnection, auroral acceleration region, etc.)

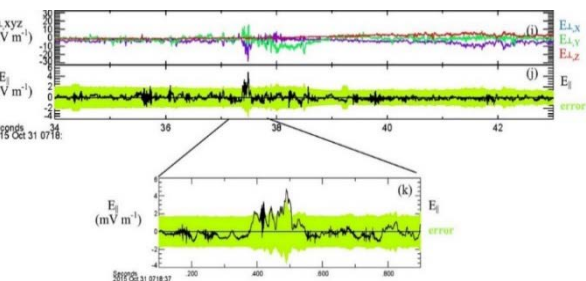


(A-B) Spin plane & (C) spin axis E-field components measured by Polar.

Spin Plane Signal = Geophysical Signal

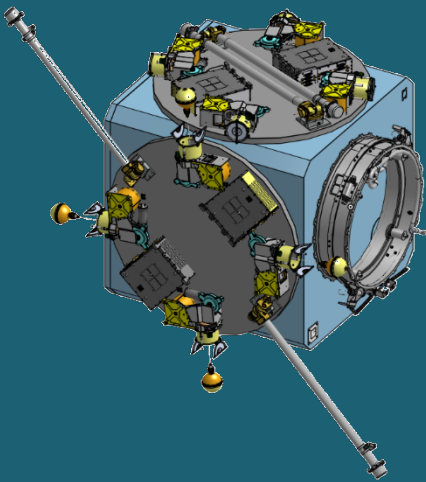
Spin Axis Signal = Large Spin Periodic Error

=> Large Uncertainty in 3D E-Field

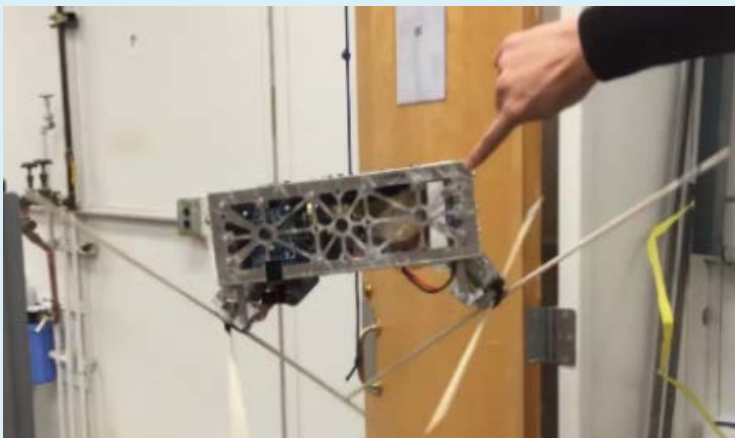


(From Øieroset et al., 2016) MMS (i) perpendicular E-field, (j) parallel E-field (k) zoom-in. Uncertainty is in green.

Uncertainty in E_{\parallel} = Greater than Value



We propose a **new instrument design** to measure **all electric field components** with **high accuracy** – including the **parallel E-field**.



GROTIFER

- Leverages **50+ years of expertise** in delivering highly accurate spin plane E-field measurements
- Uses **Twin Orthogonal Rotating Platforms** to make **4 instantaneous measurements of the 3D E-Field**
- Designed to fit in a **27U CubeSat**

Meet Grotifer: a CubeSat that Will Provide Highly Accurate Three-Component Electric Field Measurements throughout the Heliosphere

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