



## **Location of wave sources using Cluster as a sensor array**

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The Cluster fleet is acting as a sensor array providing multipoint measurements in space. To fully exploit this information new tools and techniques have been developed, many inspired from fields with tradition in using sensor arrays. An example of such a technique is the wave telescope or k-filtering which is used to determine the wave vector based on magnetic field measurements.

However, the properties of the source region, such as location, motion, and shape cannot be directly determined by the techniques presently involved in the study of space plasma. This is due mainly to the plane wave representation used by these techniques.

Here we show how the generalization of the wave telescope technique from plane waves to spherical waves representation appears naturally and how this allows us to locate plasma wave sources and determine their motion and shape from magnetic field measurements. A case study is also presented.