

WHAT CAN WE LEARN FROM TWO-POINT MEASUREMENTS IN SPACE PLASMAS ?

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Dual satellite (or two-point) measurements are the crudest and yet the only possibility so far for investigating spatio-temporal phenomena in space plasmas. By making some assumptions on the wave field, it is possible to access various pertinent quantities; cross-correlation analysis, for example, was applied to ISEE and AMPTE data to extract wave numbers.

Most of these methods, however, essentially rely on linear properties, and as such can be generalized. Some of these generalizations will be discussed. Foremost among them is a Volterra modelling, which gives access to the strength of three- and four-wave interactions between the observation points. One can bring to this various improvements. One of them consists in looking for branches of the dispersion relation that are associated with coherent structures; this can be done by investigating higher order moments. Another improvement is to process together all three components of vector fields, when available. This gives insight into the wavefield rotation and stretching between the observation points.