



The space-time relations for radiances and reflectivities from TRMM and MTSAT data

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A basic property of fluid systems is that there exists a relatively well-defined lifetime for structures of a given size. This is the basic physics behind the “space-time” or Stommel” diagrammes, presented in textbooks as purely schematic, but never actually calculated empirically. Although such space-time relations are used all the time in meteorological measurements, they are usually implicit rather than explicit. For example a common problem in remote measurements is to decide how often data of a given resolution must be taken, the solution is usually ad hoc (e.g. the 3 hour intervals for the of the 3B42 TRMM precipitation product). In this presentation, we show how to empirically determine the space-time diagrams for both TRMM reflectivities and MTSAT IR radiances and we discuss how this can be used to both understand the atmosphere but also to improve data sampling strategies.