



## **A note on the flux-variance relationships for heat, water vapour and momentum over a suburban turf grass field and an agricultural site**

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Fluxes of momentum, heat and water vapour were measured over a suburban turf grass field in St. Paul, Minnesota, USA as part of the land use and ecosystem-atmosphere carbon and water exchange project and an agricultural site at Ile-Ife, Nigeria during the Nigerian Micrometeorological Experiment (NIMEX) using the eddy correlation technique. The flux-variance similarity functions and structure parameters relating momentum, heat and moisture fluxes to turbulent energy and variances of temperature and water vapour respectively have also been evaluated and compared for a few selected days at the two locations. Monin-Obukhov similarity for these parameters seems to be satisfied by the two datasets. There was very good agreement between the similarity functions for heat, moisture and vertical velocity at both locations and they also exhibit strong stability dependence under unstable conditions. But horizontal velocity similarity functions were consistently higher at the St. Paul site. Also the flux-variance similarity functions for temperature are consistently larger in magnitude

than those for water vapour at both locations. These are unlike other reported field studies, possible reasons for these differences are discussed.