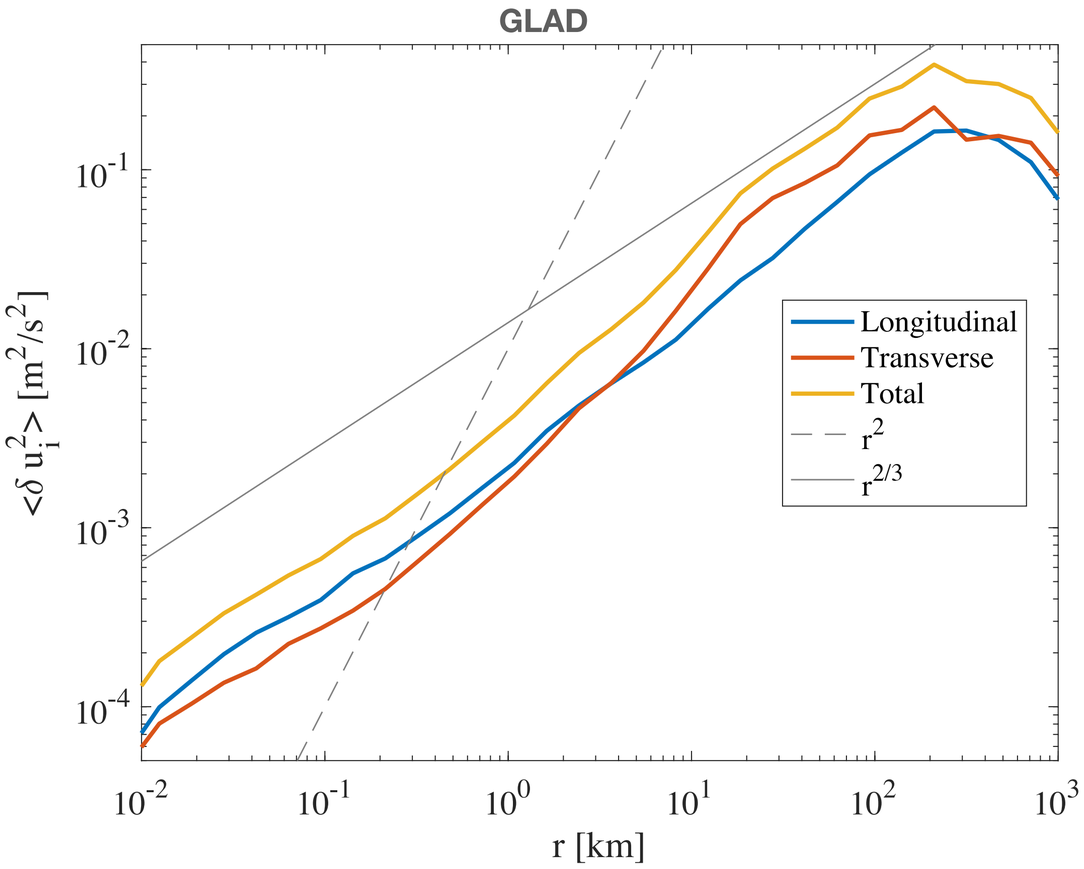
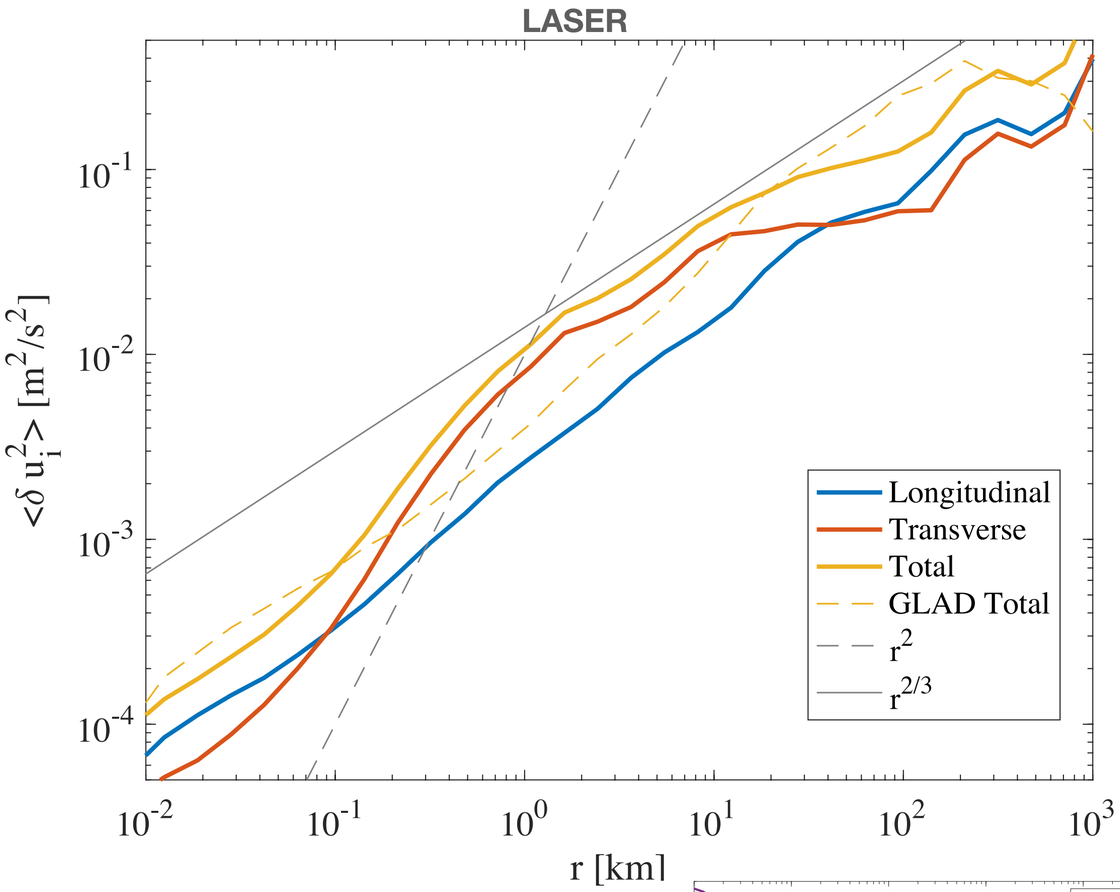
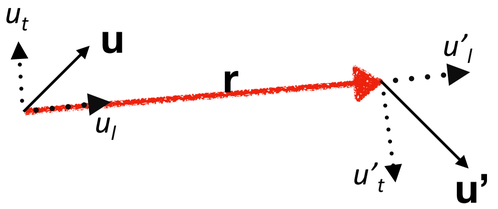
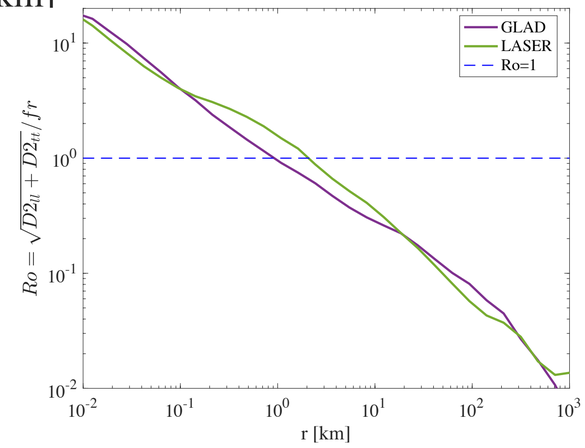
2nd Order Statistics : Longitudinal/Transverse



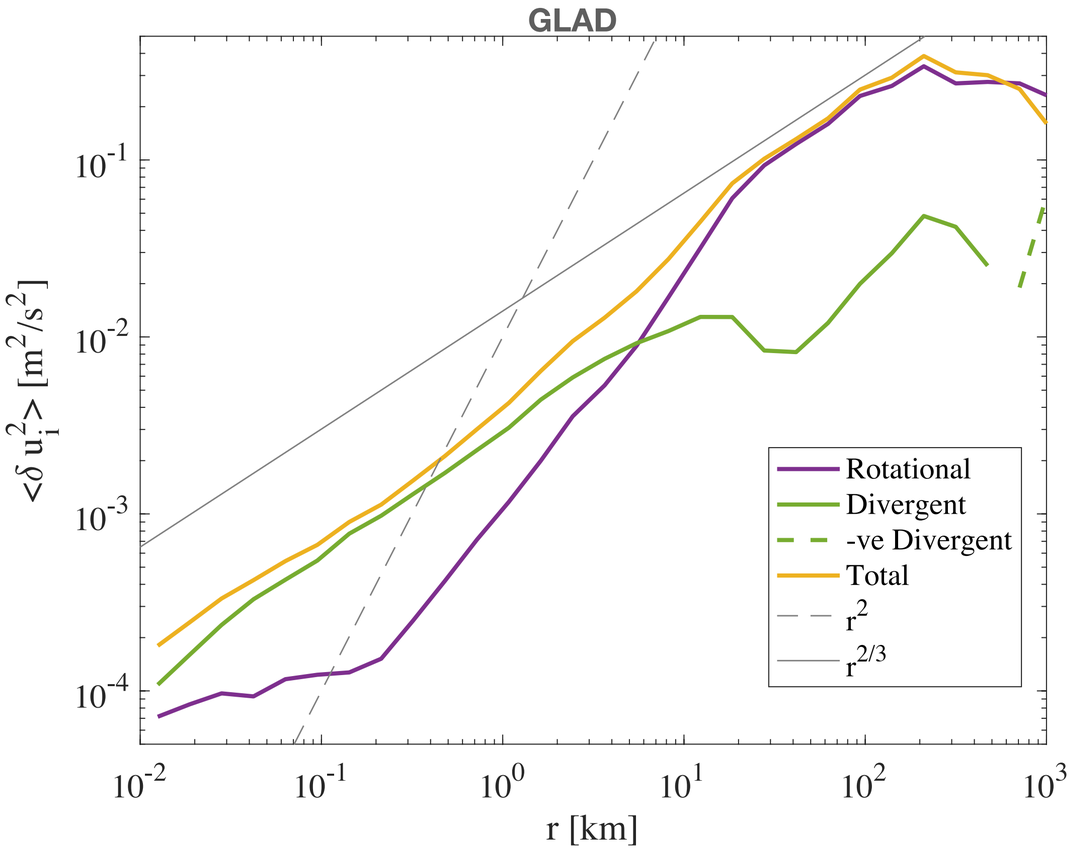


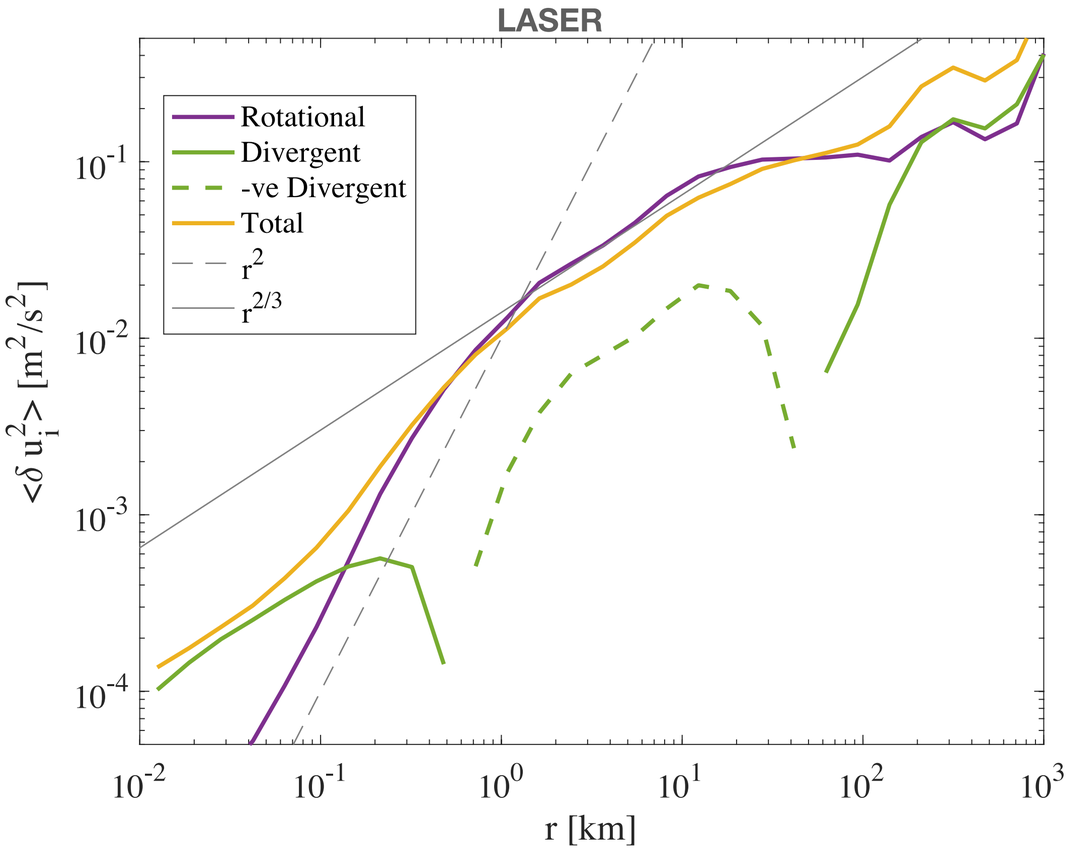


- Velocities start to get uncorrelated at larger scales (>50km).
- Both GLAD and LASER SF2s have power laws broadly close to 2/3.
- Ro>1 at scales <1-5km, and this scale is larger in winter.



2nd Order Statistics : Rotational/Divergent





Rotational: (2D turbulence like)
- Summer: inverse energy cascade like signal at scales larger than 20km.
- Winter: inverse energy cascade like signal at scales larger than 1km.
- Enstrophy cascade like signal at smaller scales.

Divergent: (An important part of the signal)
- The flatter power of the total SF is due to presence of divergent motions (~waves).
- Stronger and extending to larger scales in the summer.

Ratios: (Winter shows enhanced energy and enstrophy)
- Steeper part of rotational, which is indicative of enstrophy, shows enhancement by factor of ~10 in winter.
- Total, which is more indicative of energy shows enhancement by factor of ~2-3 in winter.