


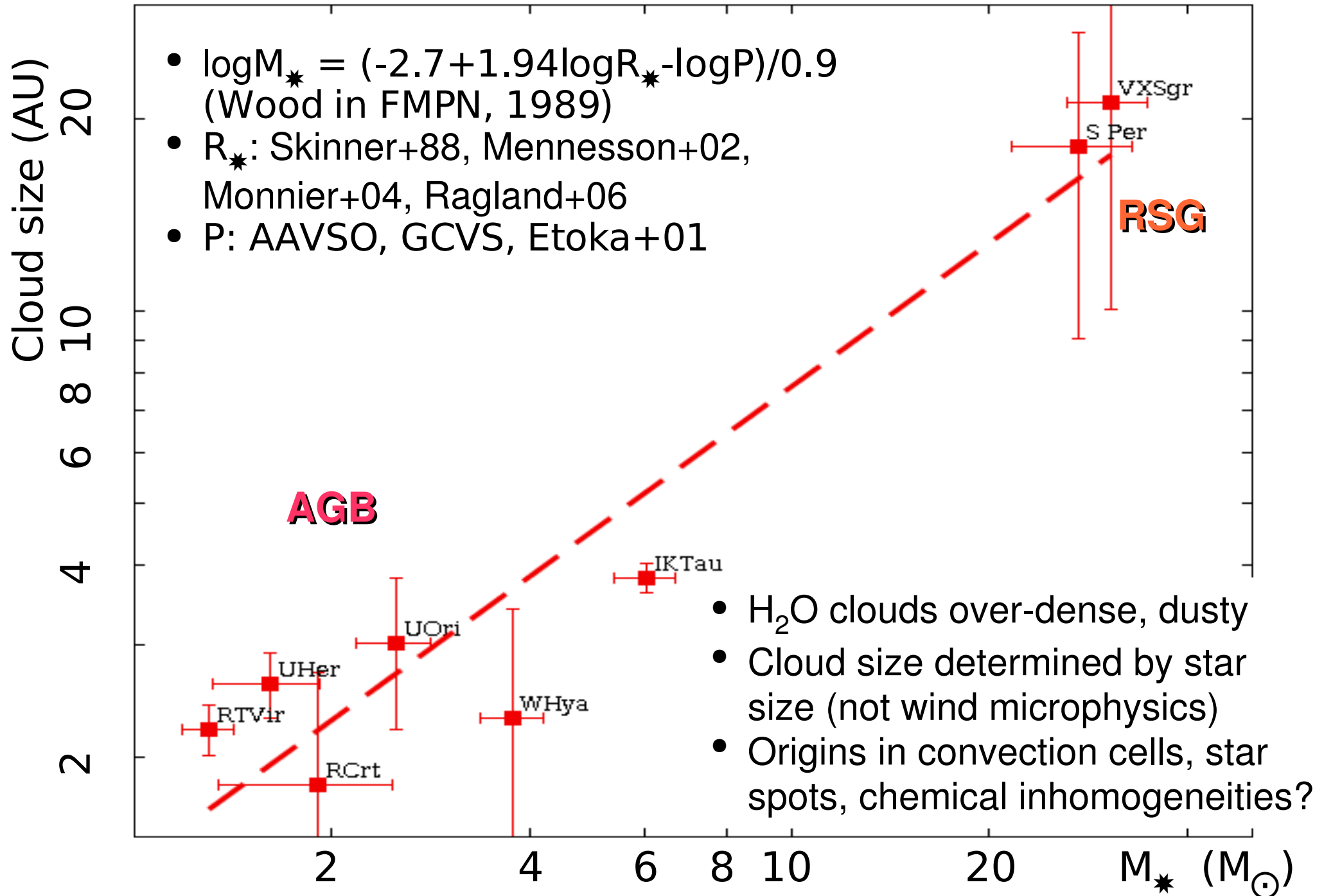
Hunting super-AGB stars with interferometry

A.M.S.Richards JBCA with thanks to Bains, Diamond, Etoka, Louridas, Rosa-Gonzalez, van Loon, Vlemmings, Yates and many others

- **Nearby stars with accurate distances**
 - Hiparchos, cluster or VLBI ||ax
 - AGB few hundred pc; RSG few kpc
- **R_{\star} from IR interferometry (literature)**
- **Wood's Mass-Period-Radius relationship**
 - Main errors: $R_{\star} \propto \lambda$, phase; P often irregular
- **Tens of H₂O maser clouds at $\sim 5-100 R_{\star}$**
 - MERLIN: unbeamed size, (sub)AU accuracy (Richards+99, Murakawa+03, Bains+03)
 - Noticed RSG cloud size $\sim 10x$ AGB cloud size
- **Now found even closer relationship with M_{\star}**
- **SMILES  legacy proposal to look at AGB/RSG mass loss**

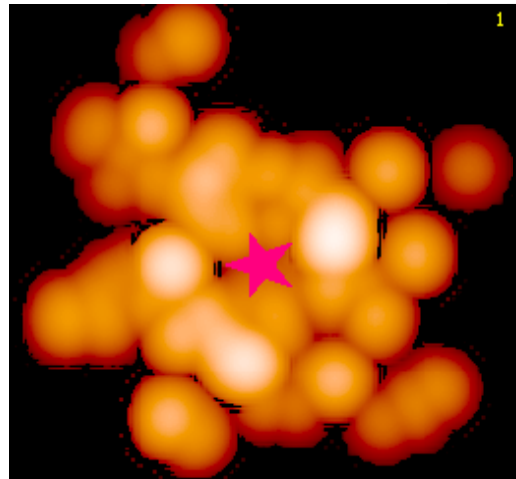


H₂O maser cloud size/Stellar mass

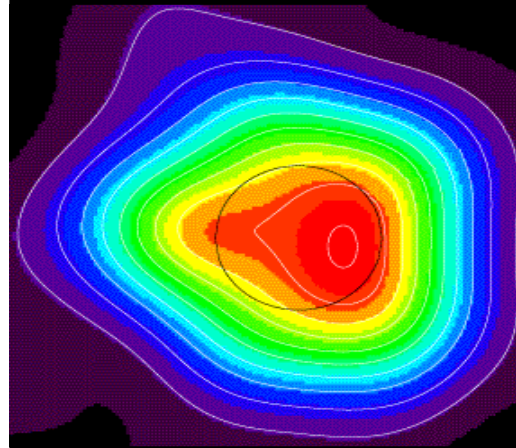


☺ Stellar Massloss In Late Evolutionary Stages ☺

- **e-MERLIN legacy proposal**
 - <http://webmail.jb.man.ac.uk/legacy/legacywiki/StarsMasersAndSpectral>
 - Contact Anita (amsr@jb.man.ac.uk) for pwd
 - Letters of Intent due April 2008
- Resolve radio photosphere (e-MERLIN)
- Expect 1 or 2 mass loss events/yr *in clumps?*
- Track in SiO maser zone (1-few yr) (VLBA)
- See water maser clouds condense (e-MERLIN)
 - Water maser shell crossing time few yr - decades
- Resolve dust formation zone (ALMA)
 - Is dust concentrated in water maser clumps?
 - How far out do clumps survive?
- Trace OH masers around/outside water clouds



10 wks of RT Vir
H2O clouds



Radio star
 α Ori Lim+ 98