

Supporting Information for

**Seasonal and interannual variations in China's groundwater based
on GRACE data and multisource hydrological models**

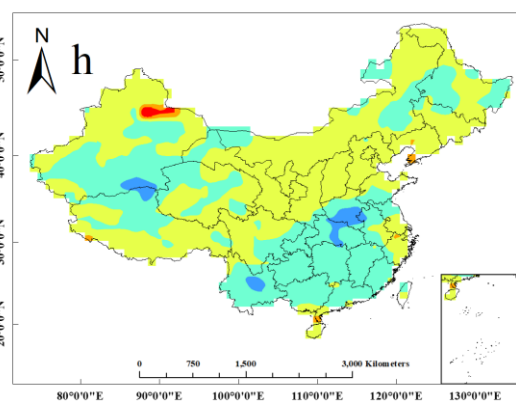
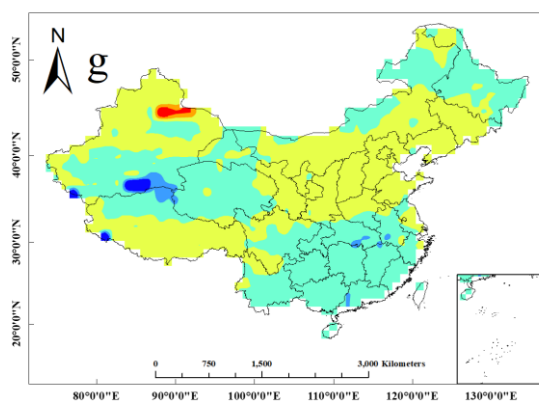
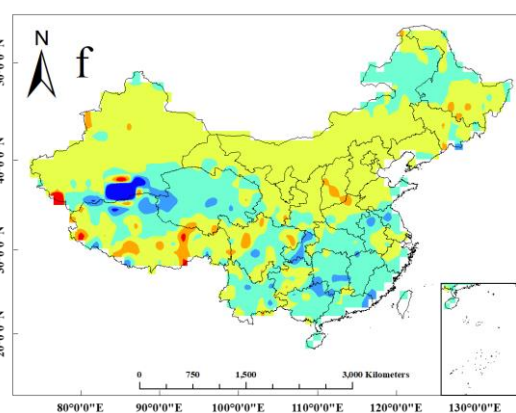
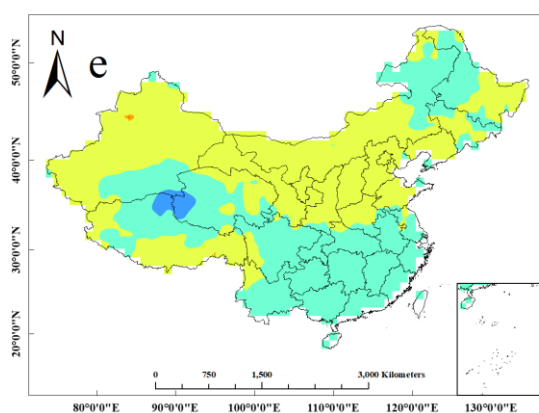
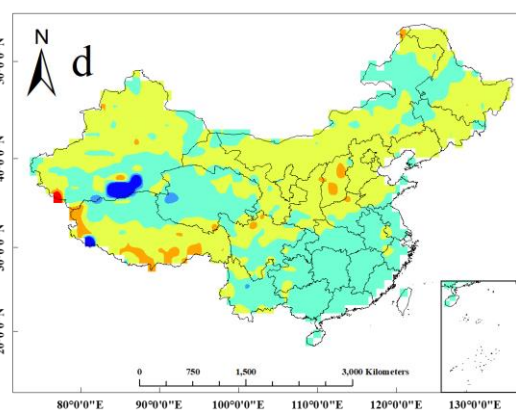
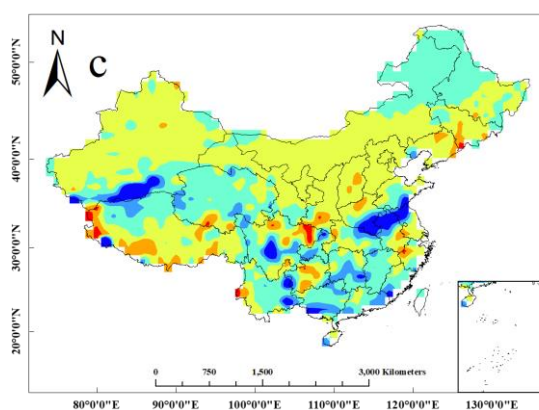
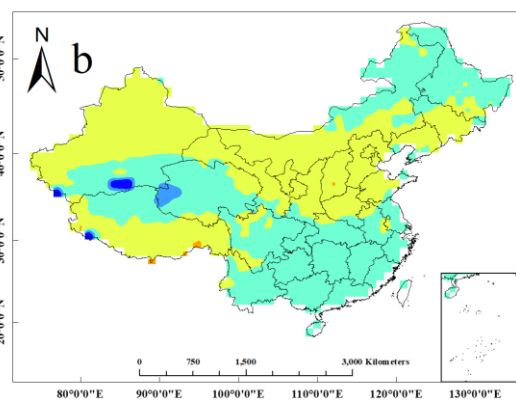
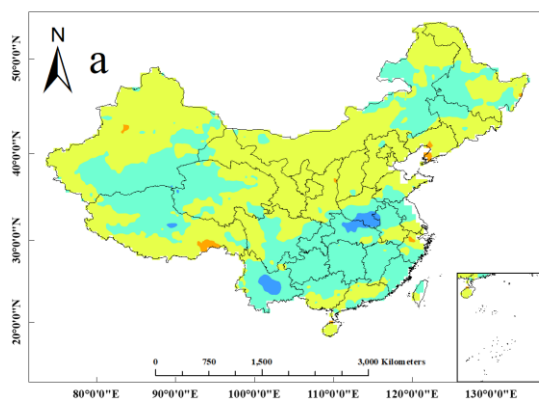
Jianxin Zhang^{1,2,3}, Kai Liu^{1,2,3*}, Ming Wang^{1,2,3}

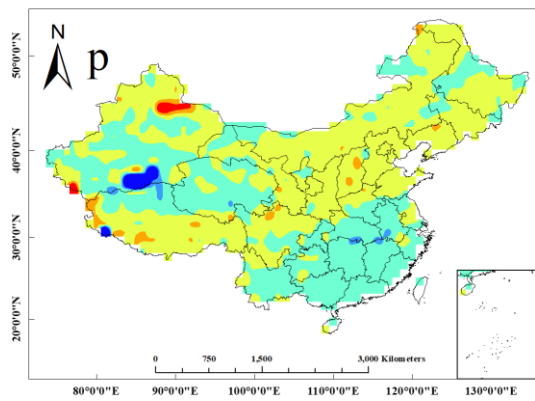
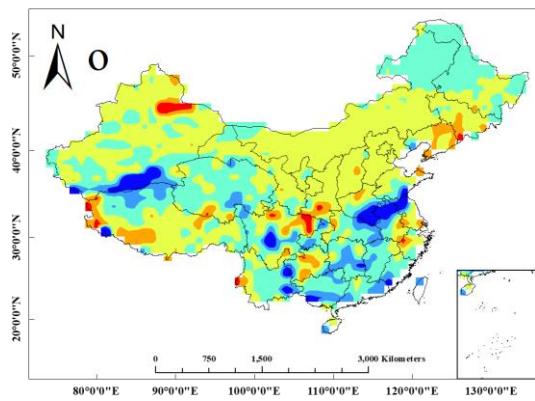
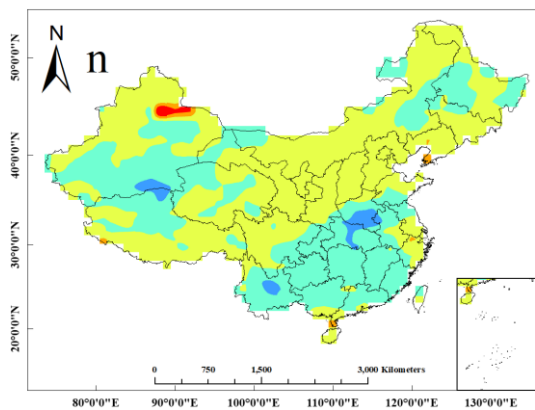
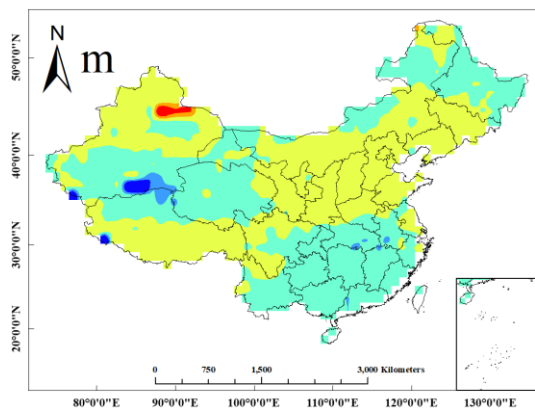
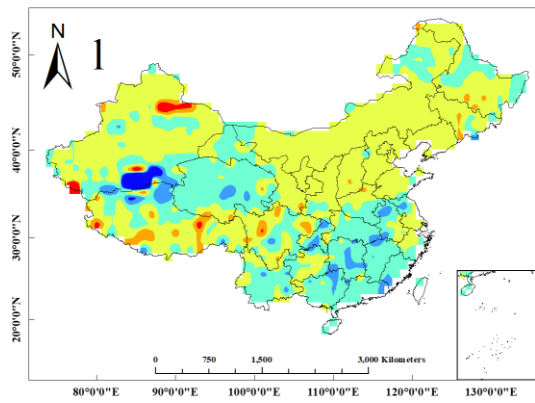
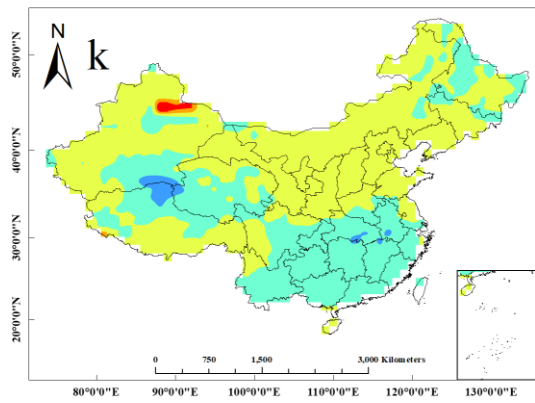
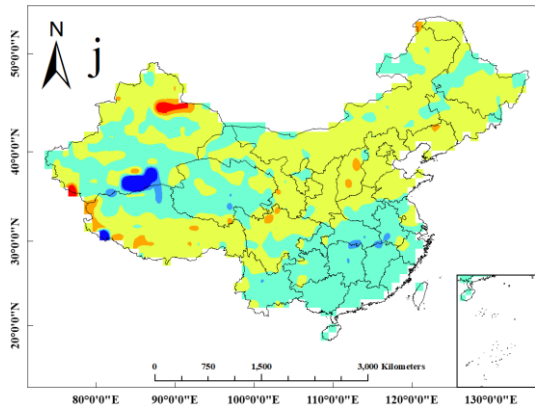
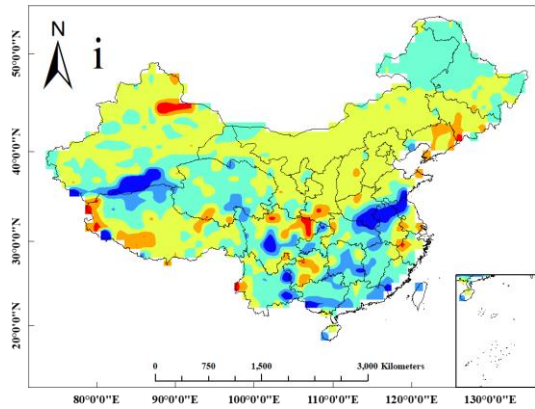
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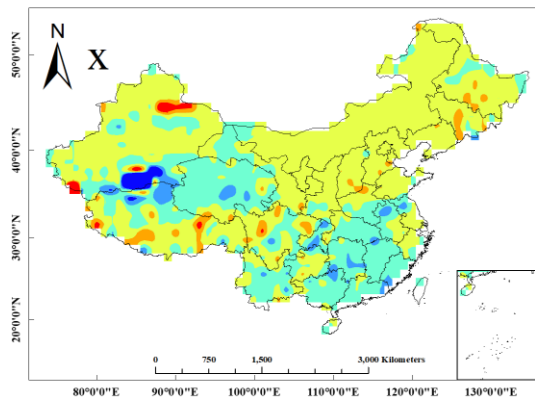
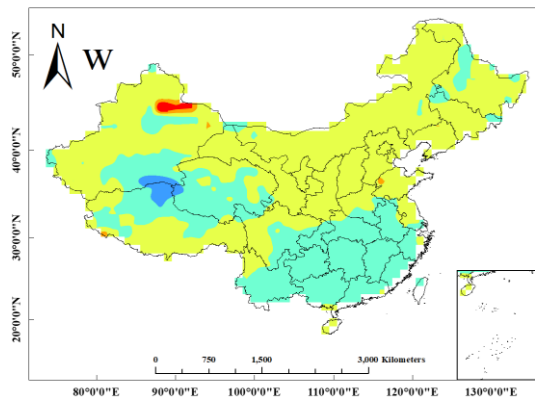
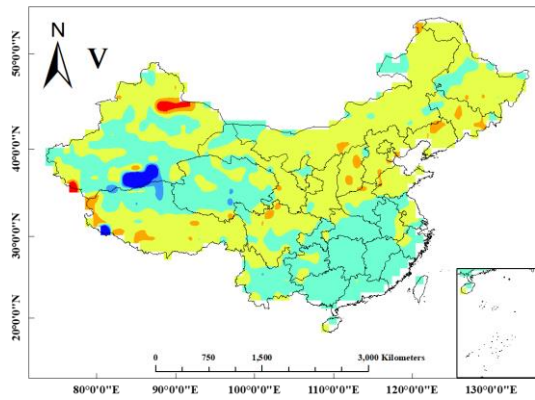
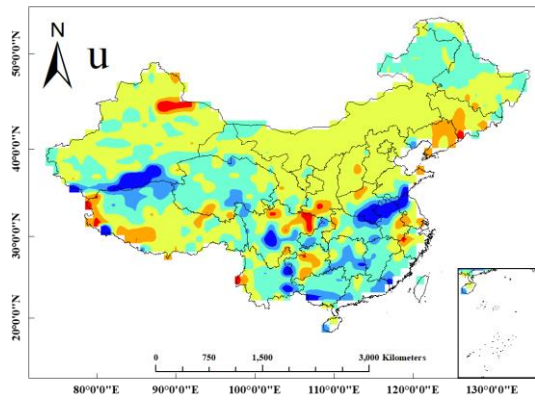
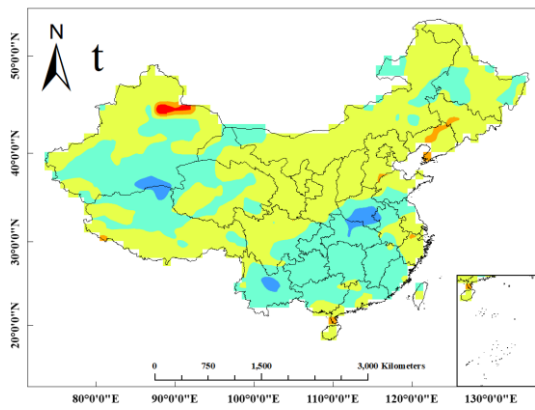
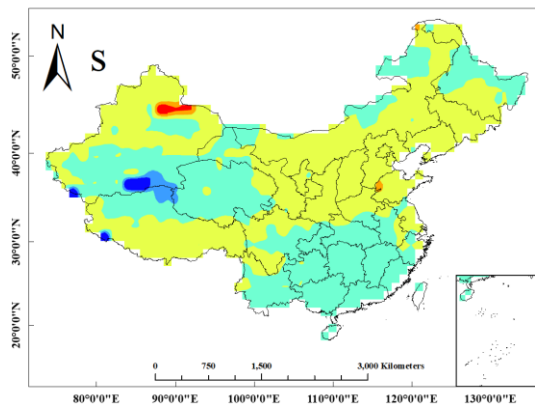
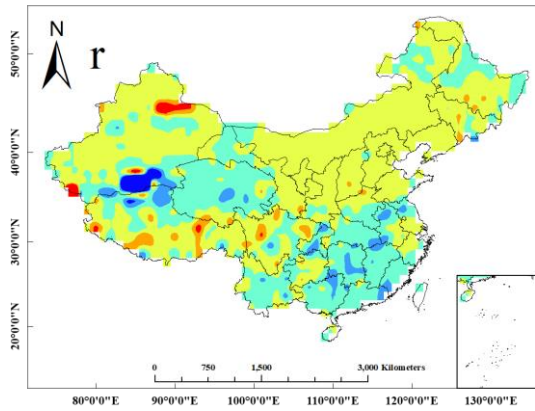
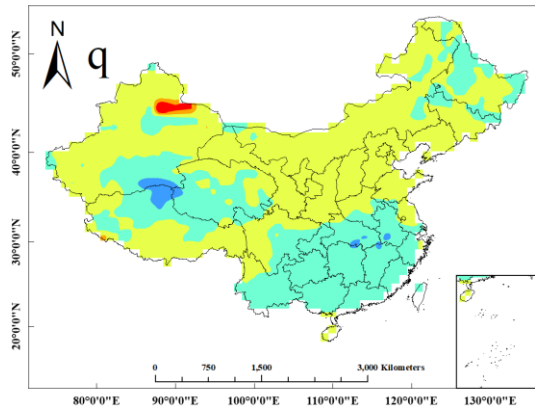
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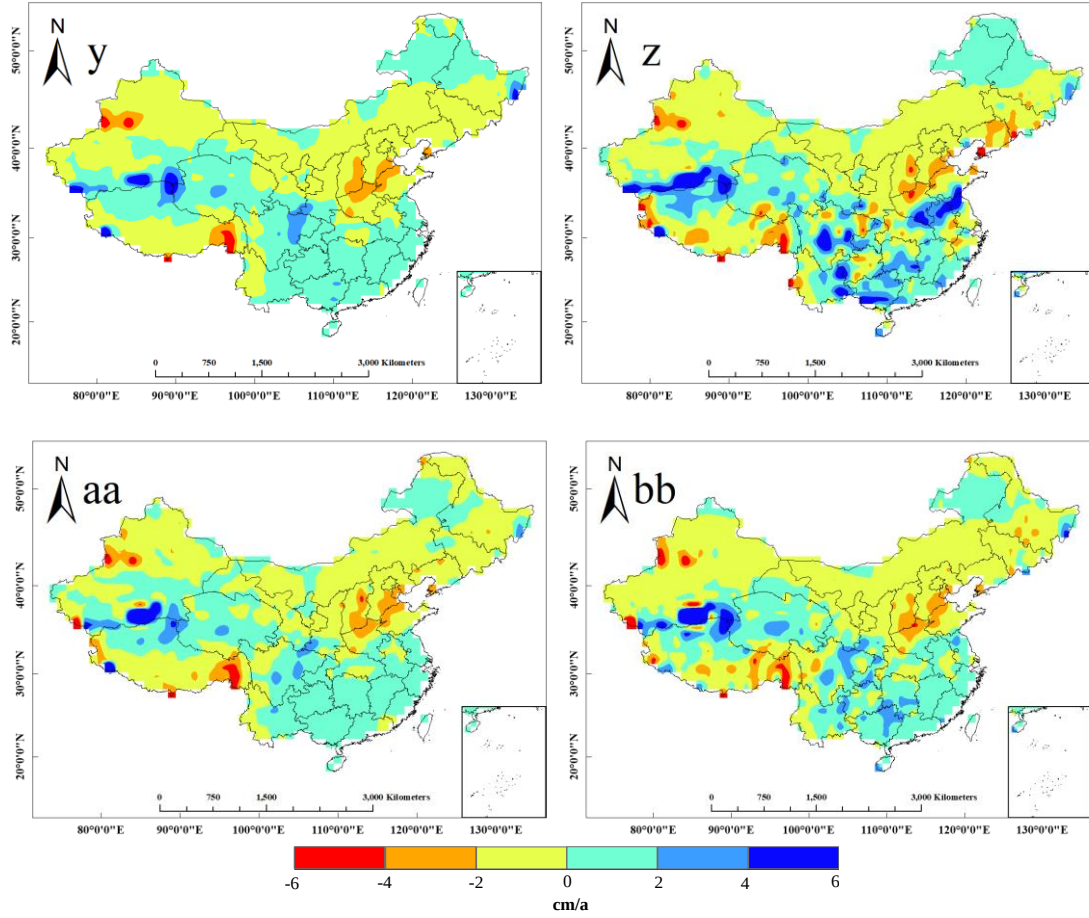
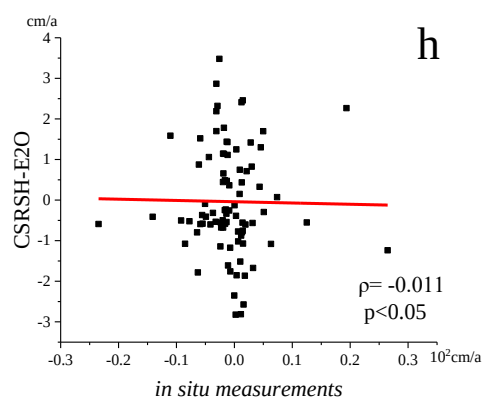
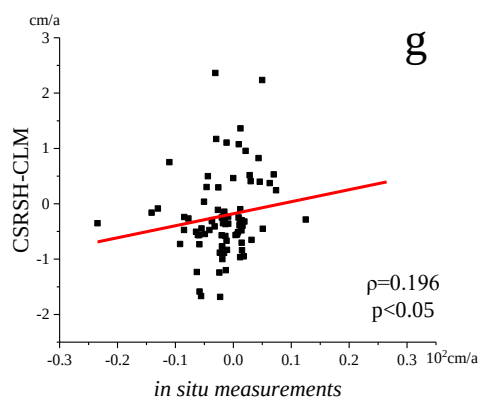
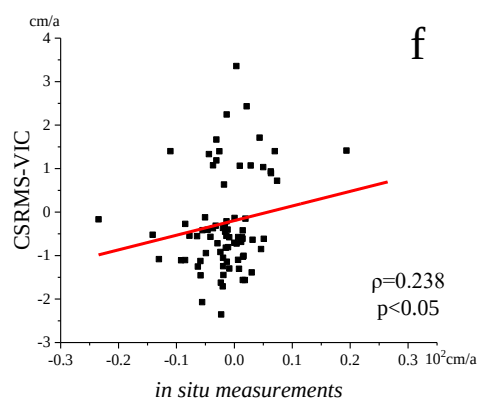
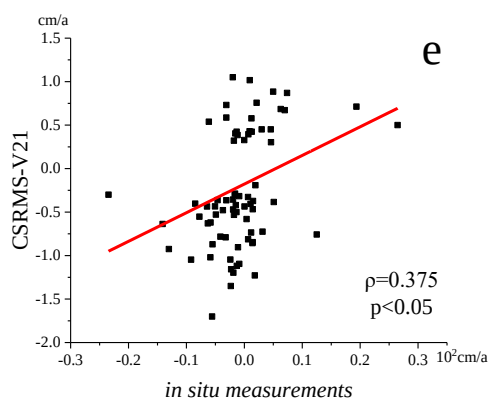
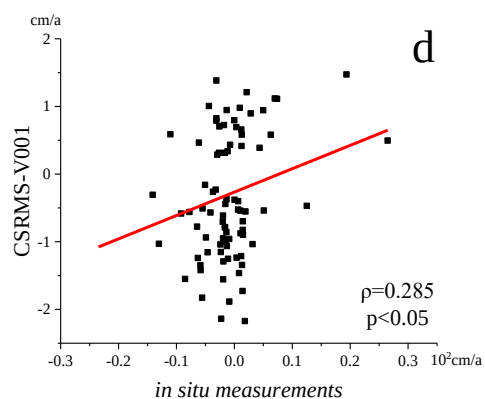
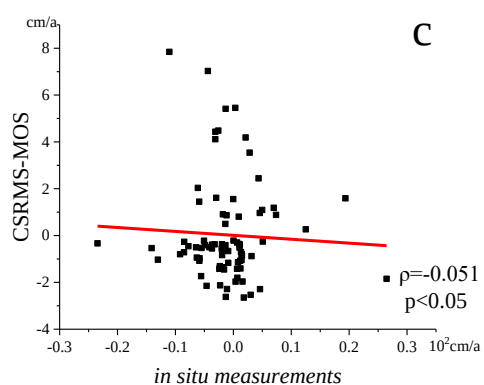
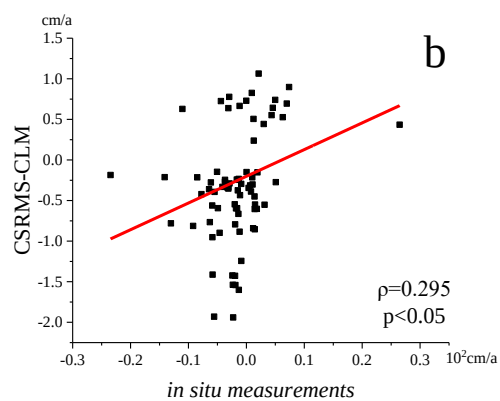
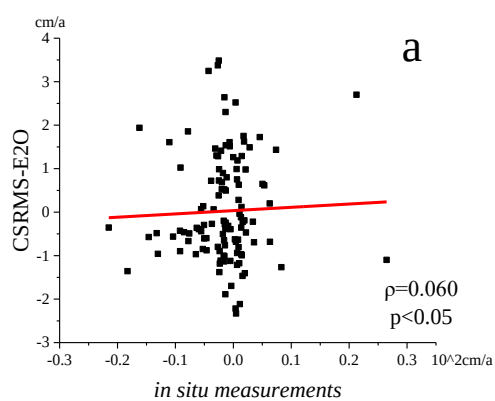
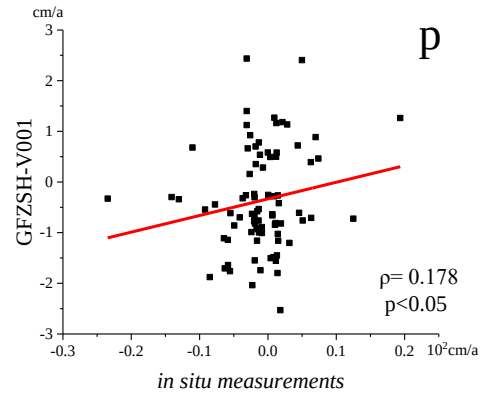
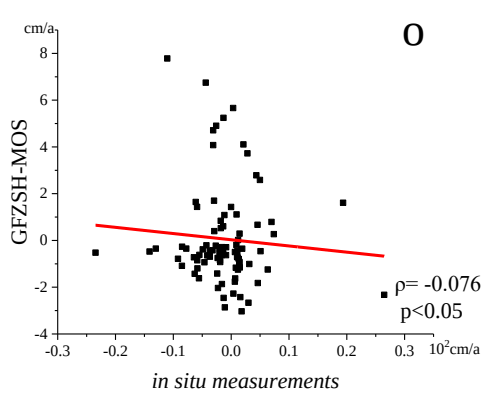
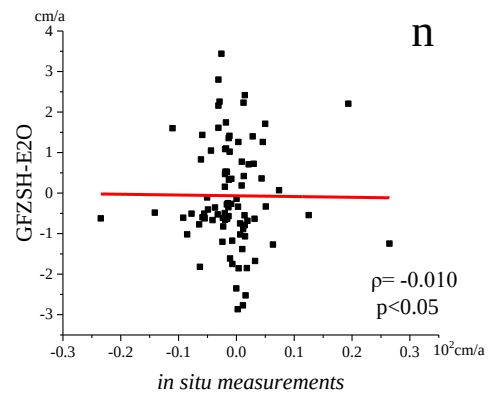
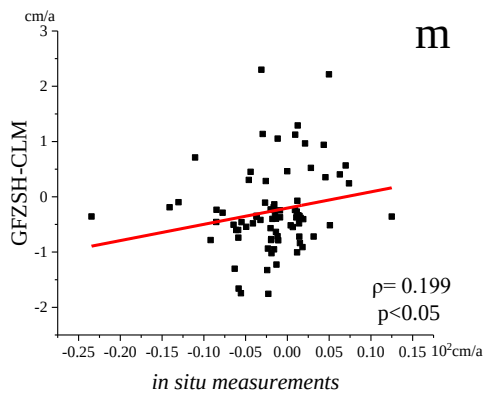
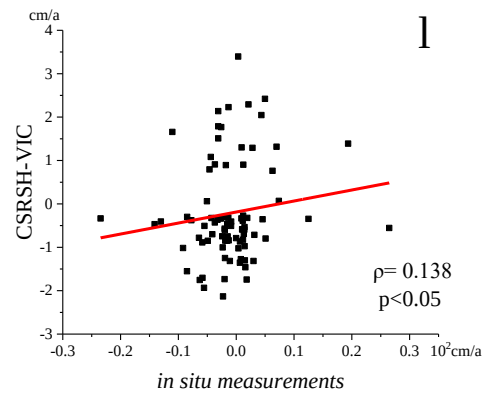
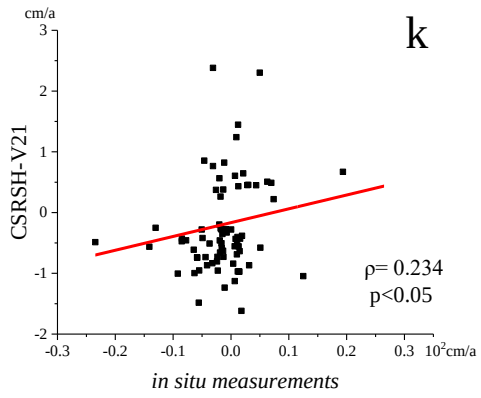
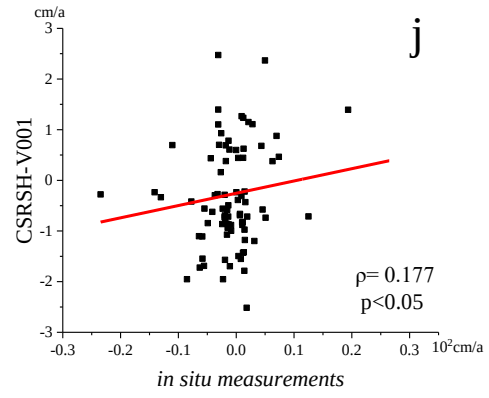
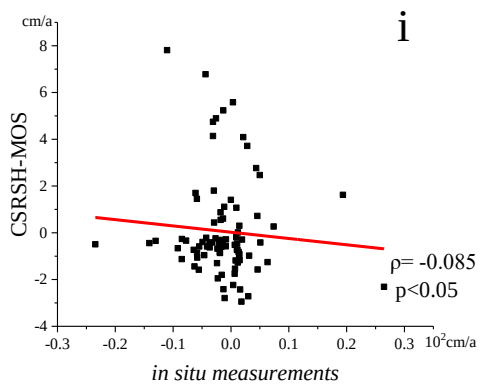
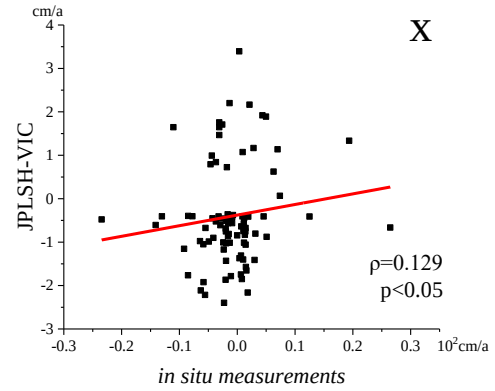
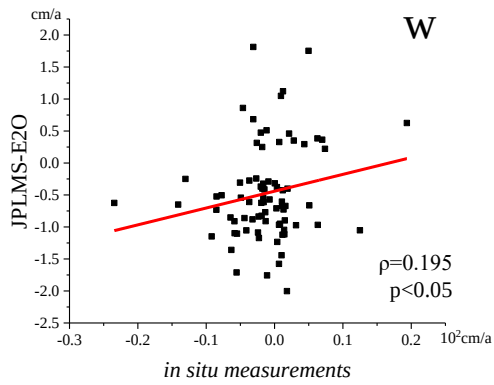
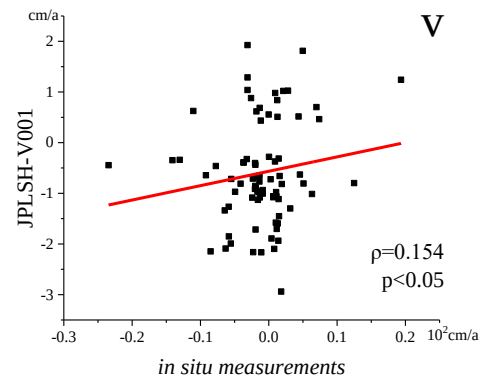
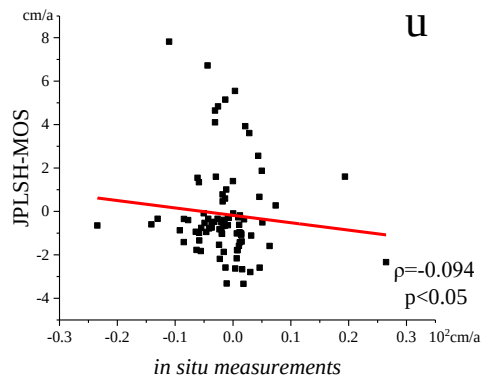
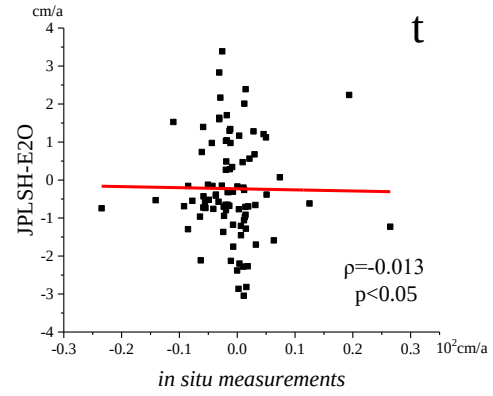
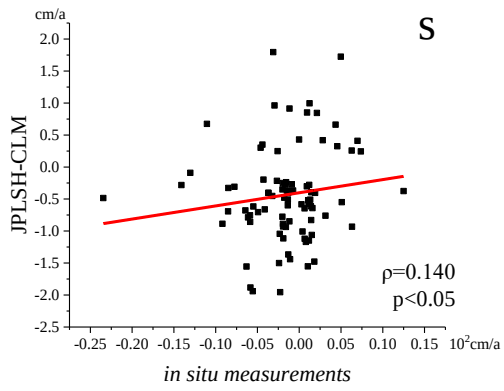
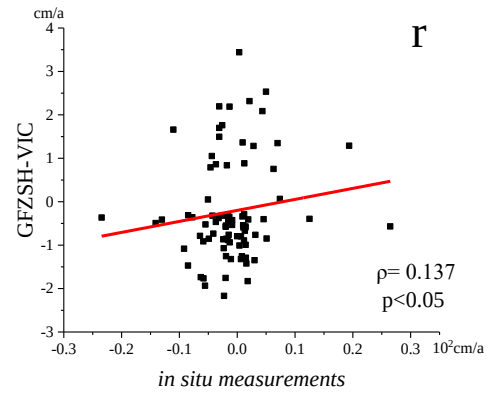
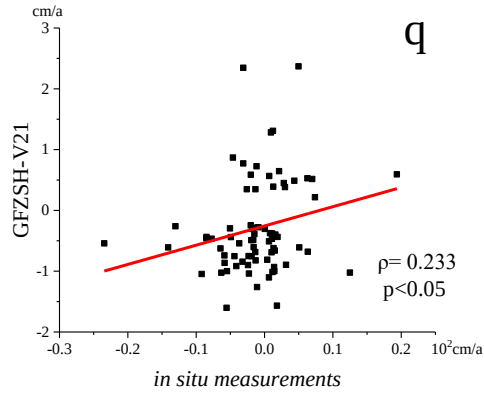


Fig. S1. The interannual trend of GWS from different data sets **a.** GWS derived from GRACE CSRMS combined with E2O, **b.** GWS derived from GRACE CSRMS combined with GLDAS CLM, **c.** GWS derived from GRACE CSRMS combined with GLDAS Mosaic, **d.** GWS derived from GRACE CSRMS and GLDAS Noah V001, **e.** GWS derived from GRACE CSRMS combined with GLDAS Noah V2.1, **f.** GWS derived from GRACE CSRMS combined with GLDAS VIC, **g.** GWS derived from GRACE CSRSH combined with GLDAS CLM, **h.** GWS derived from GRACE CSRSH combined with E2O, **i.** GWS derived from GRACE CSRSH combined with GLDAS Mosaic, **j.** GWS derived from GRACE CSRSH combined with GLDAS Noah V001, **k.** GWS derived from GRACE CSRSH combined with GLDAS Noah V2.1, **l.** GWS derived from GRACE CSRSH combined with GLDAS VIC, **m.** GWS derived from GRACE GFZSH combined with GLDAS CLM, **n.** GWS derived from GRACE GFZSH combined with E2O, **o.** GWS derived from GRACE GFZSH combined with GLDAS Mosaic, **p.** GWS derived from GRACE GFZSH combined with GLDAS Noah V001, **q.** GWS derived from GRACE GFZSH combined with GLDAS Noah V2.1, **r.** GWS derived from GRACE GFZSH combined with GLDAS VIC, **s.** GWS derived from GRACE JPLSH combined with GLDAS CLM, **t.** GWS derived from GRACE JPLSH combined with E2O, **u.** GWS derived from GRACE JPLSH combined with GLDAS Mosaic, **v.** GWS derived from GRACE JPLSH combined with GLDAS Noah V001, **w.** GWS derived from GRACE JPLSH combined with GLDAS Noah V2.1, **x.** GWS derived from GRACE JPLSH combined with GLDAS VIC, **y.** GWS derived from GRACE JPLMS combined with GLDAS CLM, **z.** GWS derived from GRACE JPLMS combined with GLDAS MOS, **aa.** GWS derived from GRACE JPLMS combined with GLDAS Noah V001, **bb.** GWS derived from GRACE JPLMS combined with GLDAS VIC.







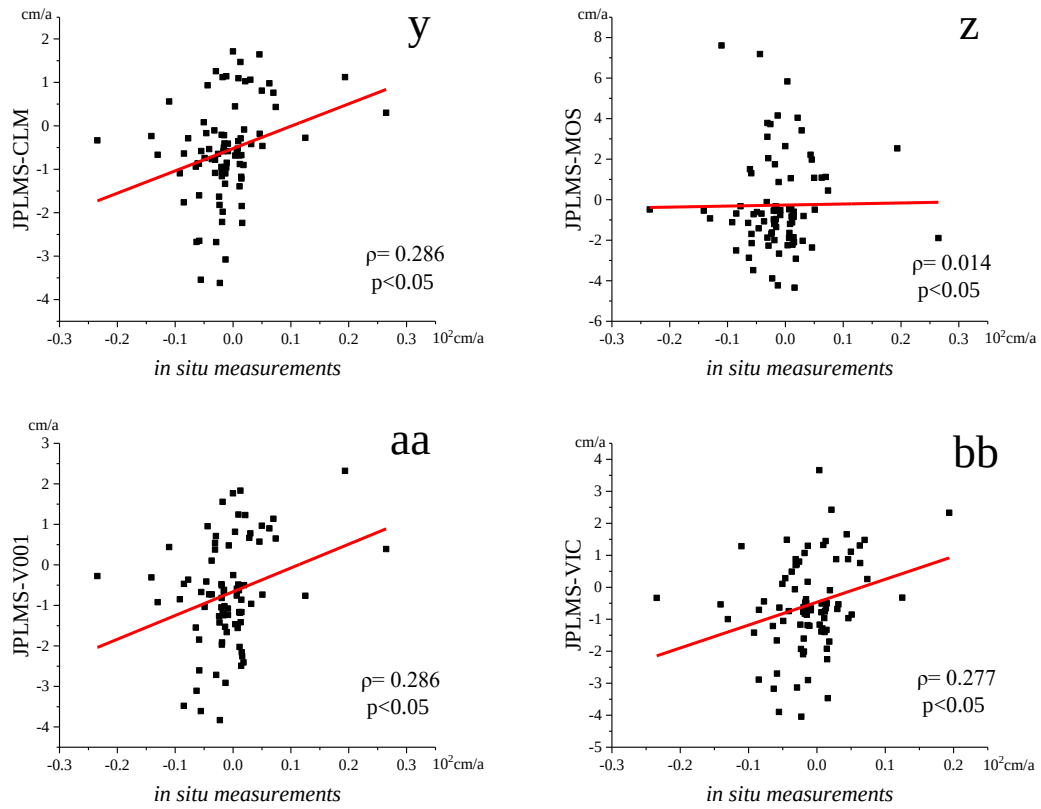


Fig. S2 Pearson's Correlation Coefficient ρ between in situ measurements and GWS derived from the combination of different GRACE products and GLADS model outputs. The correlations were computed with statistical significance at the 5% level. **a.** GWS derived from GRACE CSRMS combined with E2O, **b.** GWS derived from GRACE CSRMS combined with GLDAS CLM, **c.** GWS derived from GRACE CSRMS combined with GLDAS Mosaic, **d.** GWS derived from GRACE CSRMS and GLDAS Noah V001, **e.** GWS derived from GRACE CSRMS combined with GLDAS Noah V2.1, **f.** GWS derived from GRACE CSRMS combined with GLDAS VIC, **g.** GWS derived from GRACE CSRSH combined with GLDAS CLM, **h.** GWS derived from GRACE CSRSH combined with E2O, **i.** GWS derived from GRACE CSRSH combined with GLDAS Mosaic, **j.** GWS derived from GRACE CSRSH combined with GLDAS Noah V001, **k.** GWS derived from GRACE CSRSH combined with GLDAS Noah V2.1, **l.** GWS derived from GRACE CSRSH combined with GLDAS VIC, **m.** GWS derived from GRACE GFZSH combined with GLDAS CLM, **n.** GWS derived from GRACE GFZSH combined with E2O, **o.** GWS derived from GRACE GFZSH combined with GLDAS Mosaic, **p.** GWS derived from GRACE GFZSH combined with GLDAS Noah V001, **q.** GWS derived from GRACE GFZSH combined with GLDAS Noah V2.1, **r.** GWS derived from GRACE GFZSH combined with GLDAS VIC, **s.** GWS derived from GRACE JPLSH combined with GLDAS CLM, **t.** GWS derived from GRACE JPLSH combined with E2O, **u.** GWS derived from GRACE JPLSH combined with GLDAS Mosaic, **v.** GWS derived from GRACE JPLSH combined with GLDAS Noah V001, **w.** GWS derived from GRACE JPLSH combined with GLDAS Noah V2.1, **x.** GWS derived from GRACE JPLSH combined with GLDAS VIC, **y.** GWS derived from GRACE JPLMS combined with GLDAS CLM, **z.** GWS derived from GRACE JPLMS combined with GLDAS MOS, **aa.** GWS derived from GRACE JPLMS combined with GLDAS Noah V001, **bb.** GWS derived from GRACE JPLMS combined with GLDAS VIC.