

Figure S1. Comparison of observed and modelled soil water potential (SWP, top figures) and soil water content (SWC, bottom figures) in 1995 and 2000 for a Norway spruce stand at Asa using four methods that relate soil water to g_{sto} (see Methods section for details).

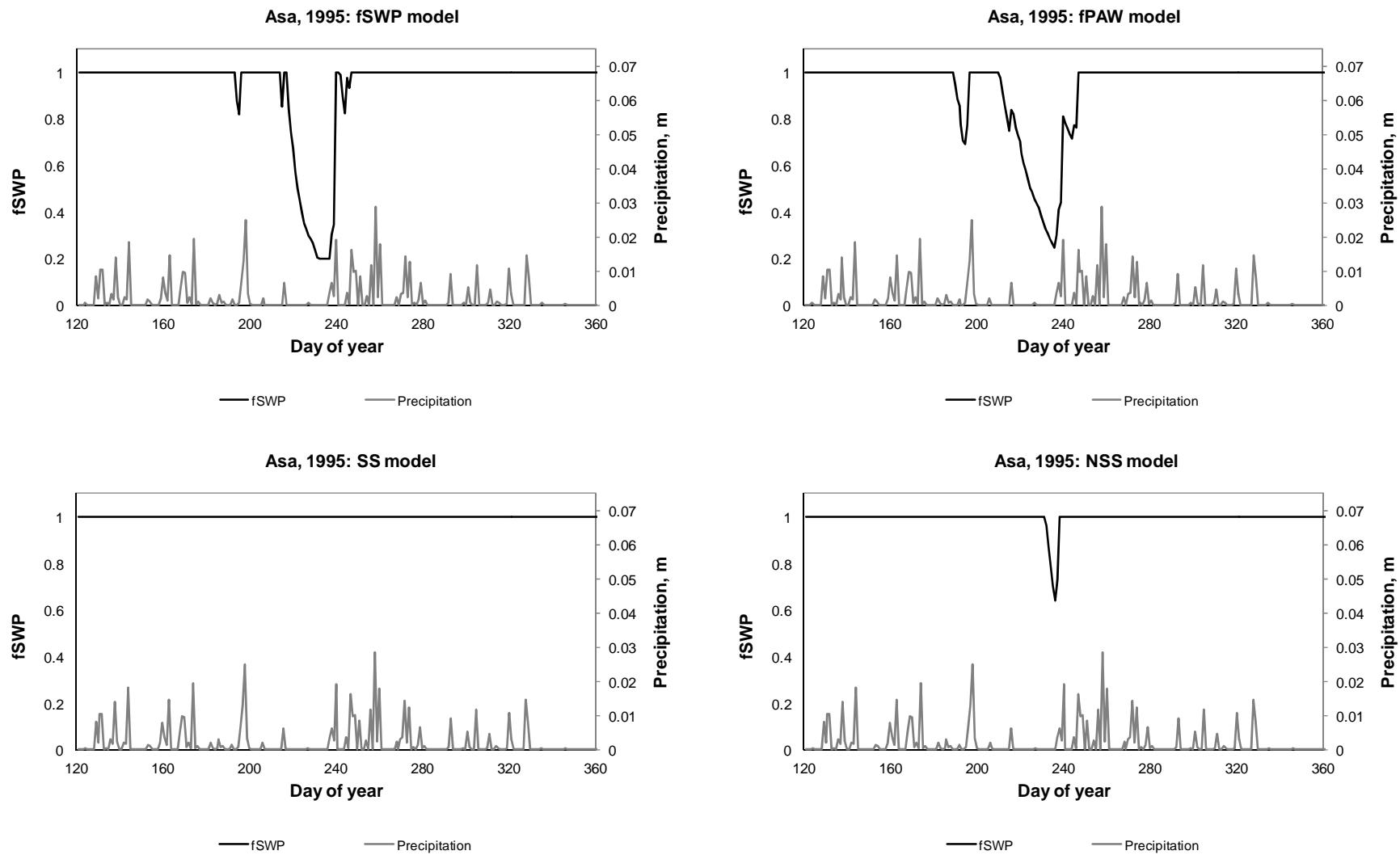


Figure S2. Precipitation and f_{SWP} in 1995 for a Norway spruce stand at Asa using four methods that relate soil water to g_{sto} (see Methods section for details).

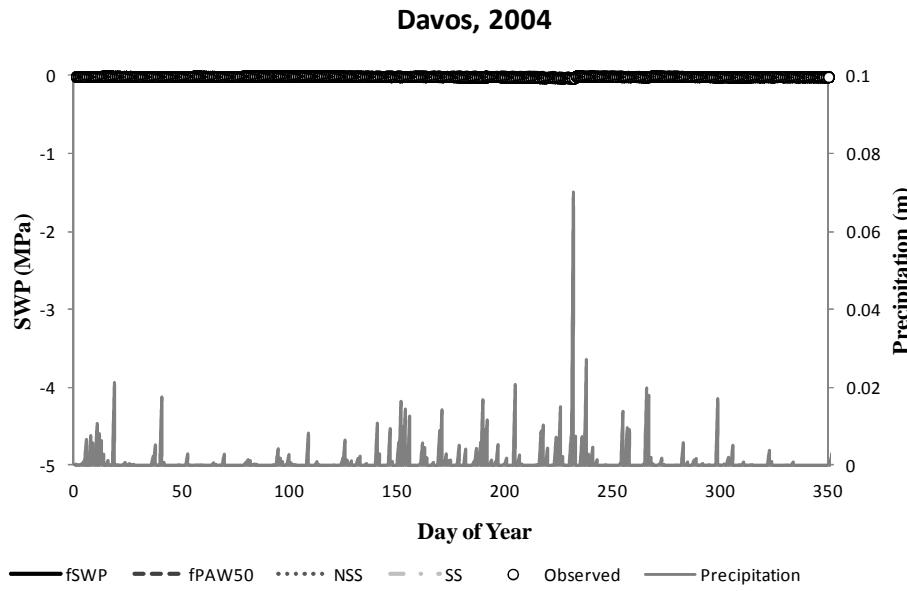


Figure S3. Comparison of observed and modelled soil water potential (SWP) in 2004 for a Norway spruce stand in Davos using four methods that relate soil water to g_{sto} (see Methods section for details).

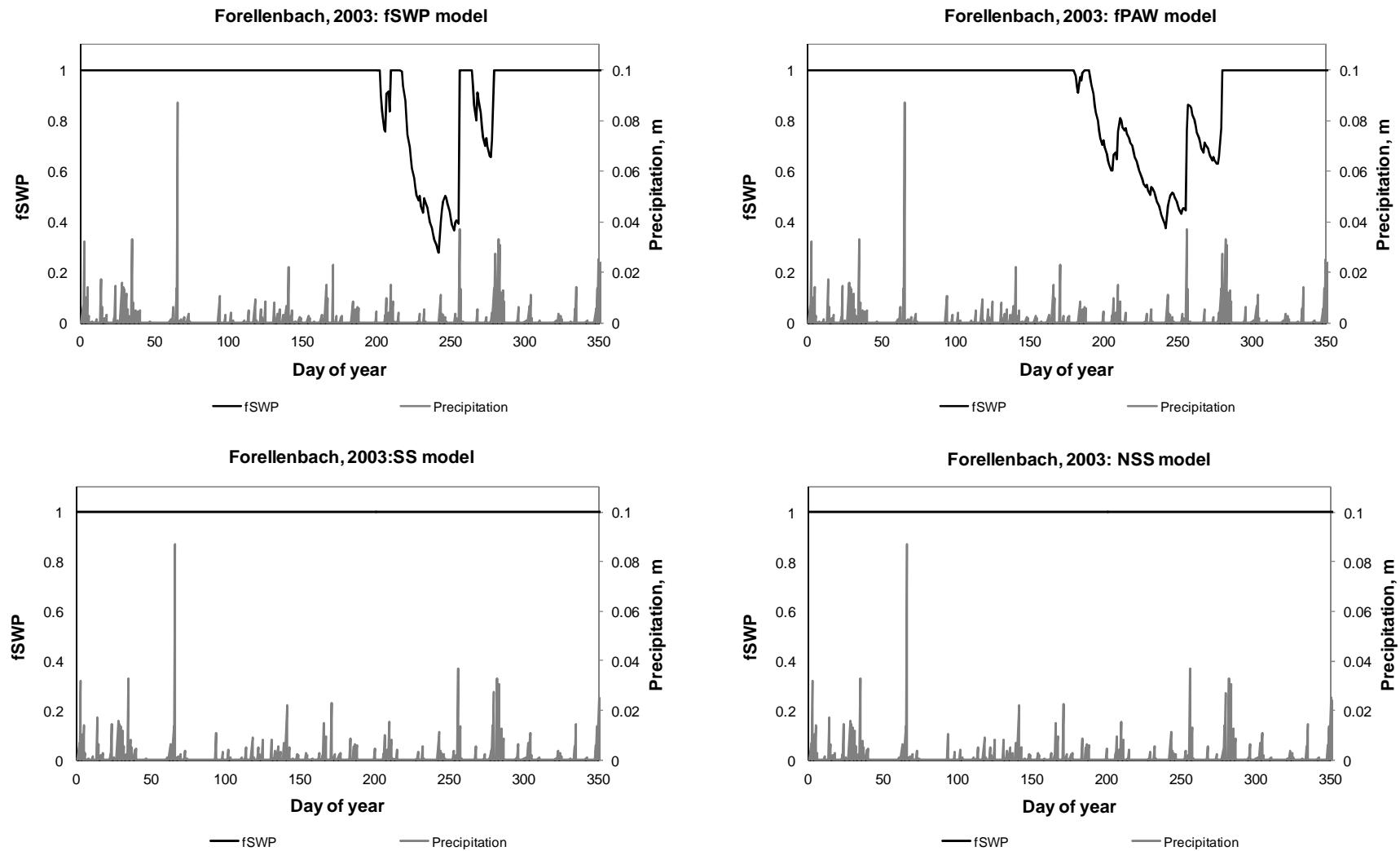


Figure S4. Precipitation and f_{SWP} in 2003 for a beech stand at Forellenbach using four methods that relate soil water to g_{sto} (see Methods section for details).

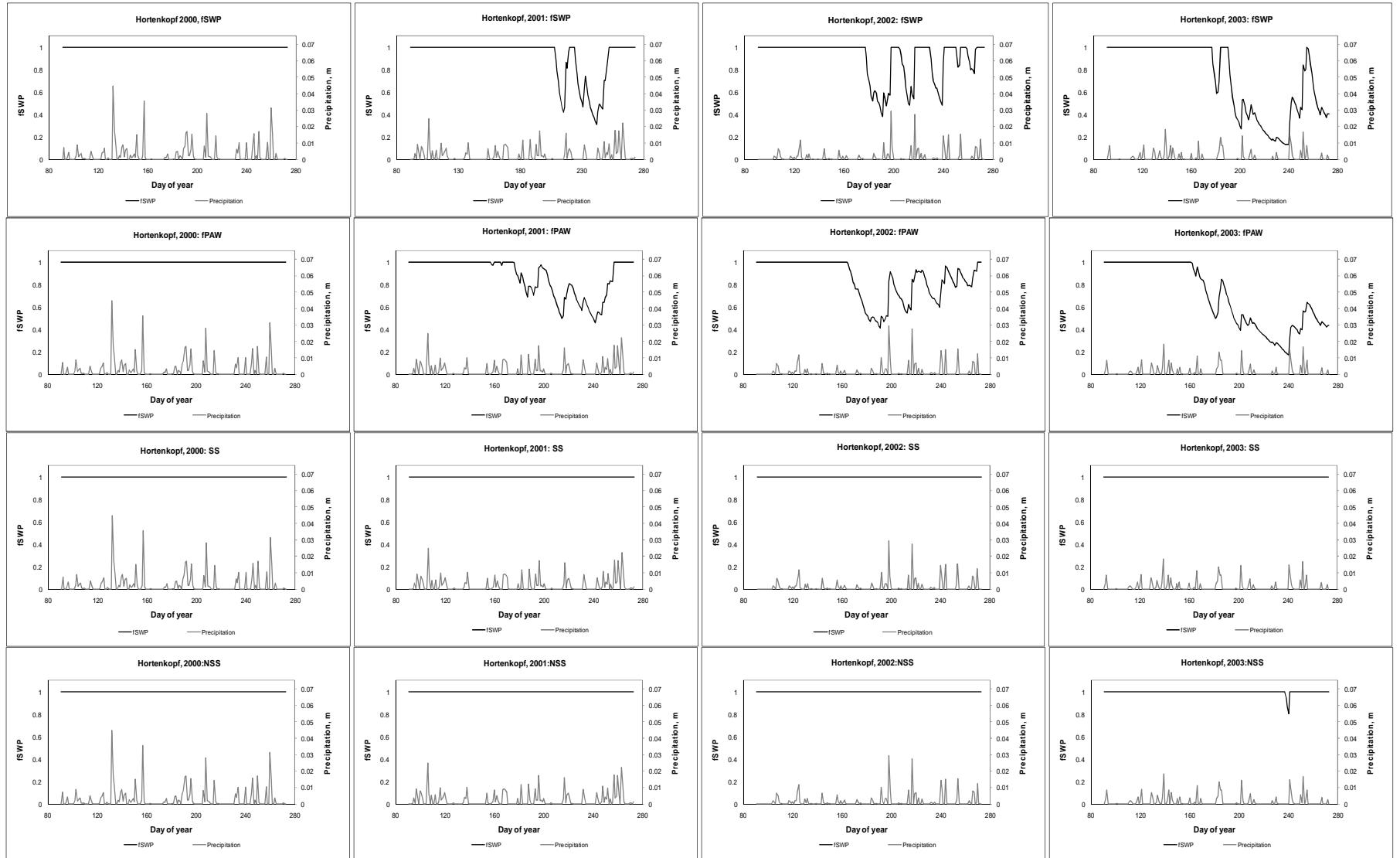


Figure S5. Precipitation and f_{SWP} in 2000, 2001, 2002 and 2003 for a mixed beech and temperate oak stand at Hortenkopf using four methods that relate soil water to g_{sto} (see Methods section for details).

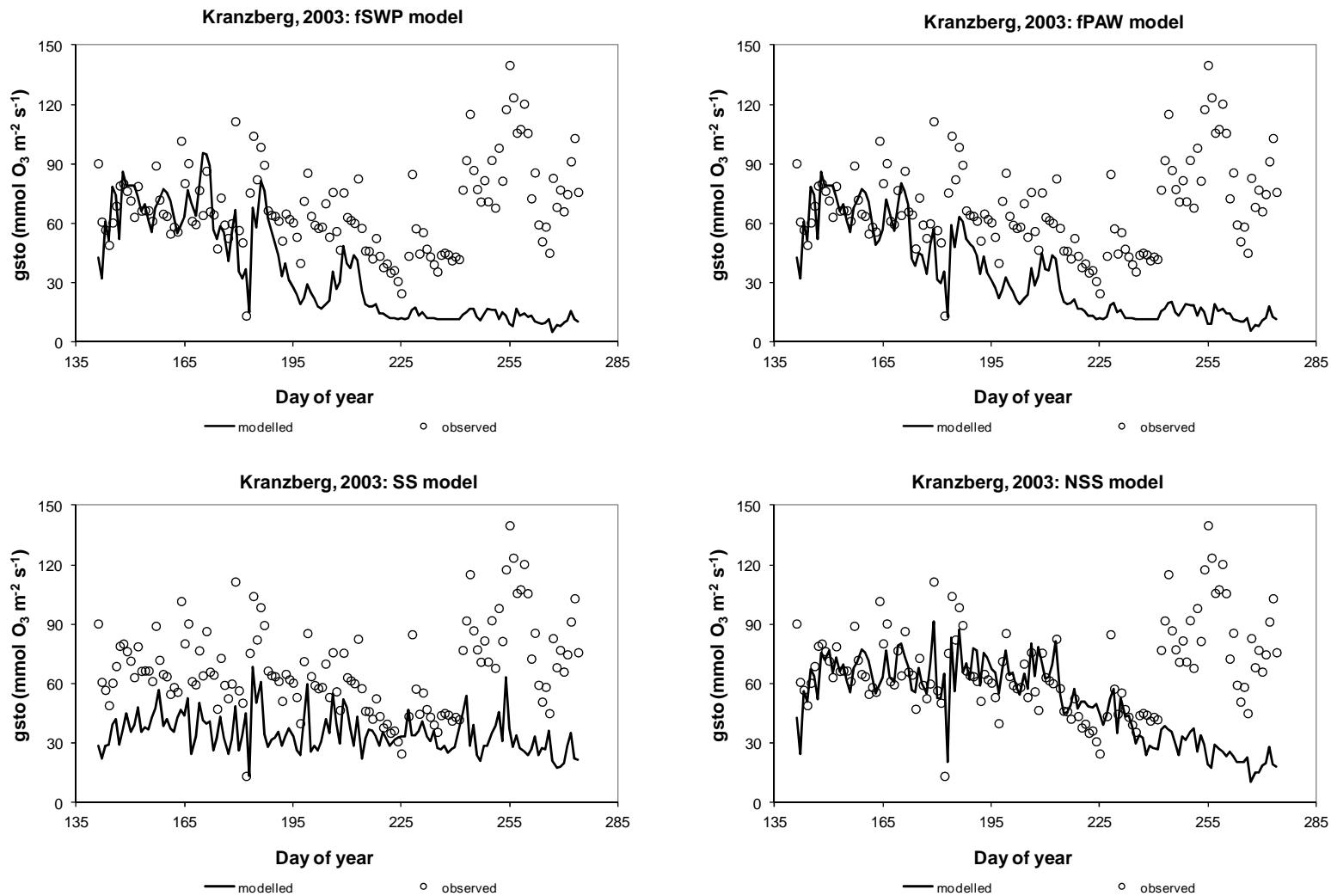


Figure S6. Modelled and observed g_{sto} of a beech leaf at Kranzberg using four methods that relate soil water to g_{sto} (see Methods section for details).

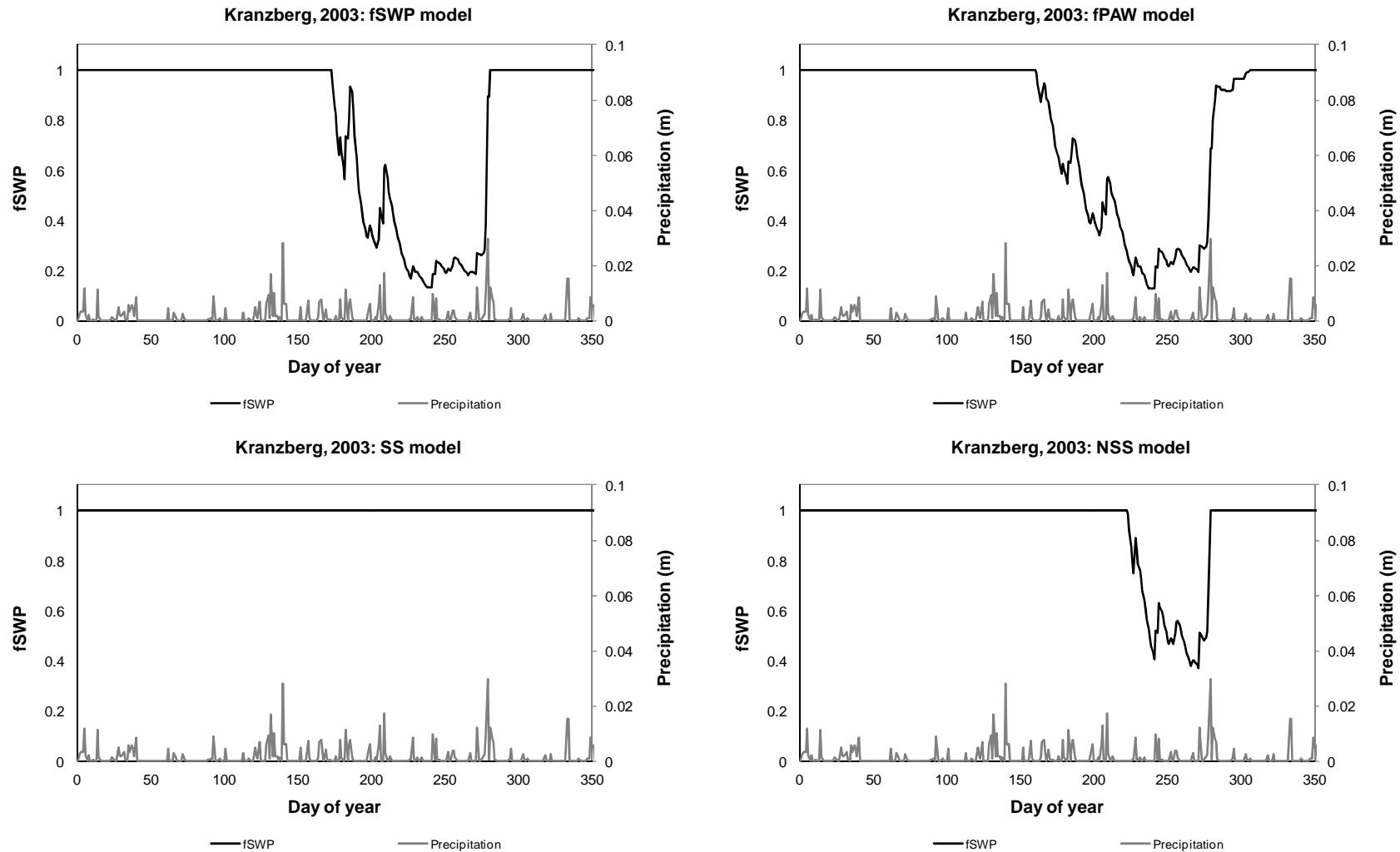


Figure S7. Precipitation and f_{SWP} in 2003 for a beech stand at Kranzberg using four methods that relate soil water to g_{sto} (see Methods section for details).

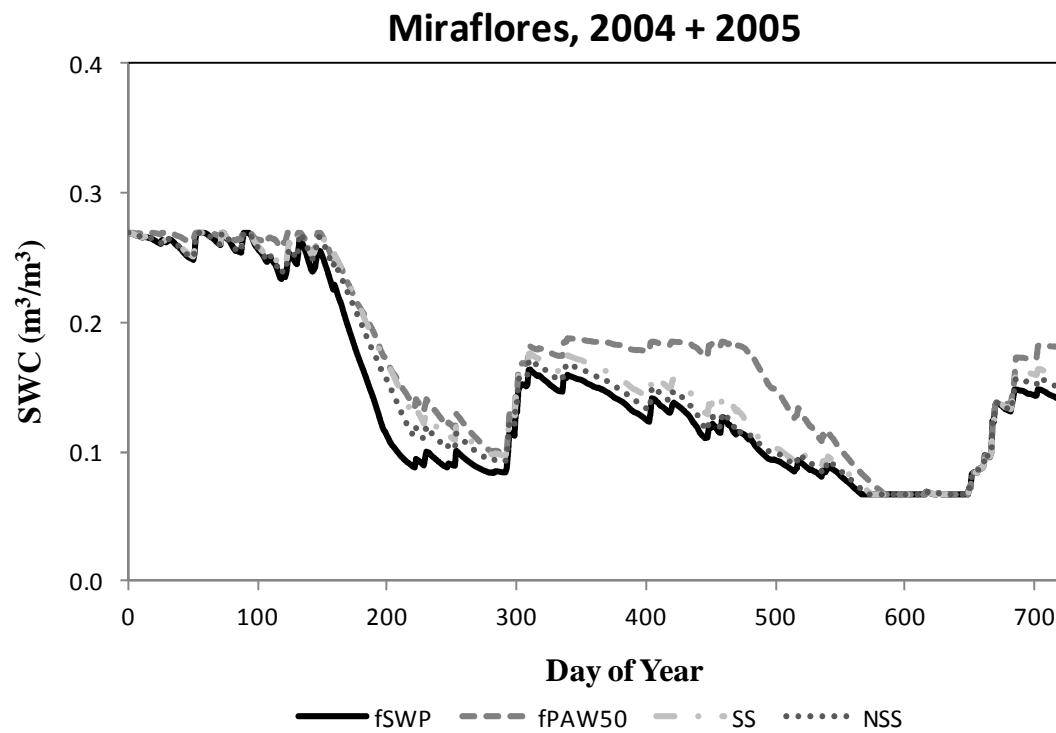


Figure S8. Modelled soil water content (SWC) in 2004 and 2005 for a holm oak stand at Miraflores de la Sierra using four methods that relate soil water to g_{sto} (see Methods section for details).

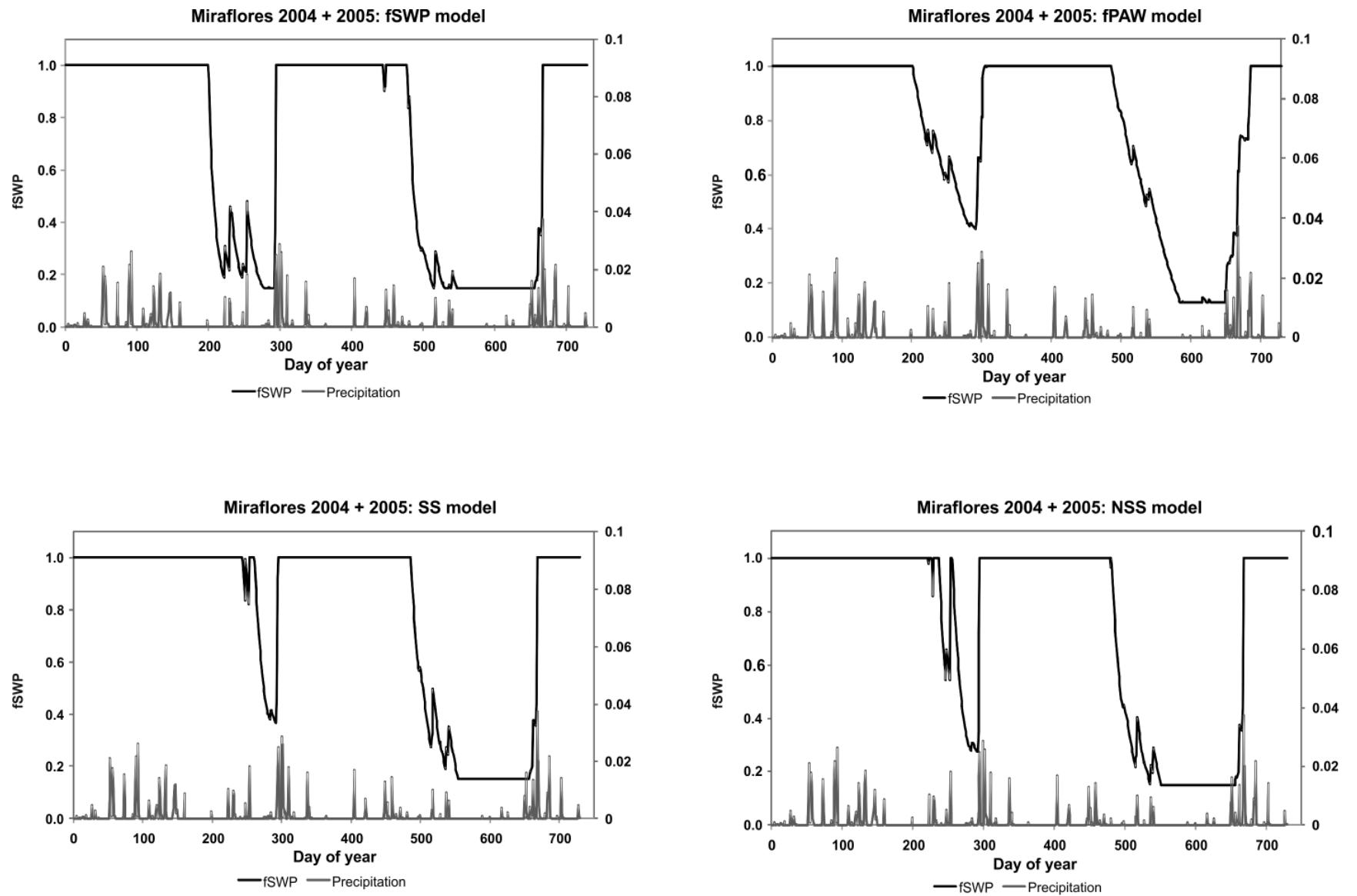


Figure S9. Precipitation and f_{SWP} in 2004 and 2005 for a holm oak stand at Miraflores de la Sierra using four methods that relate soil water to g_{sto} (see Methods section for details).

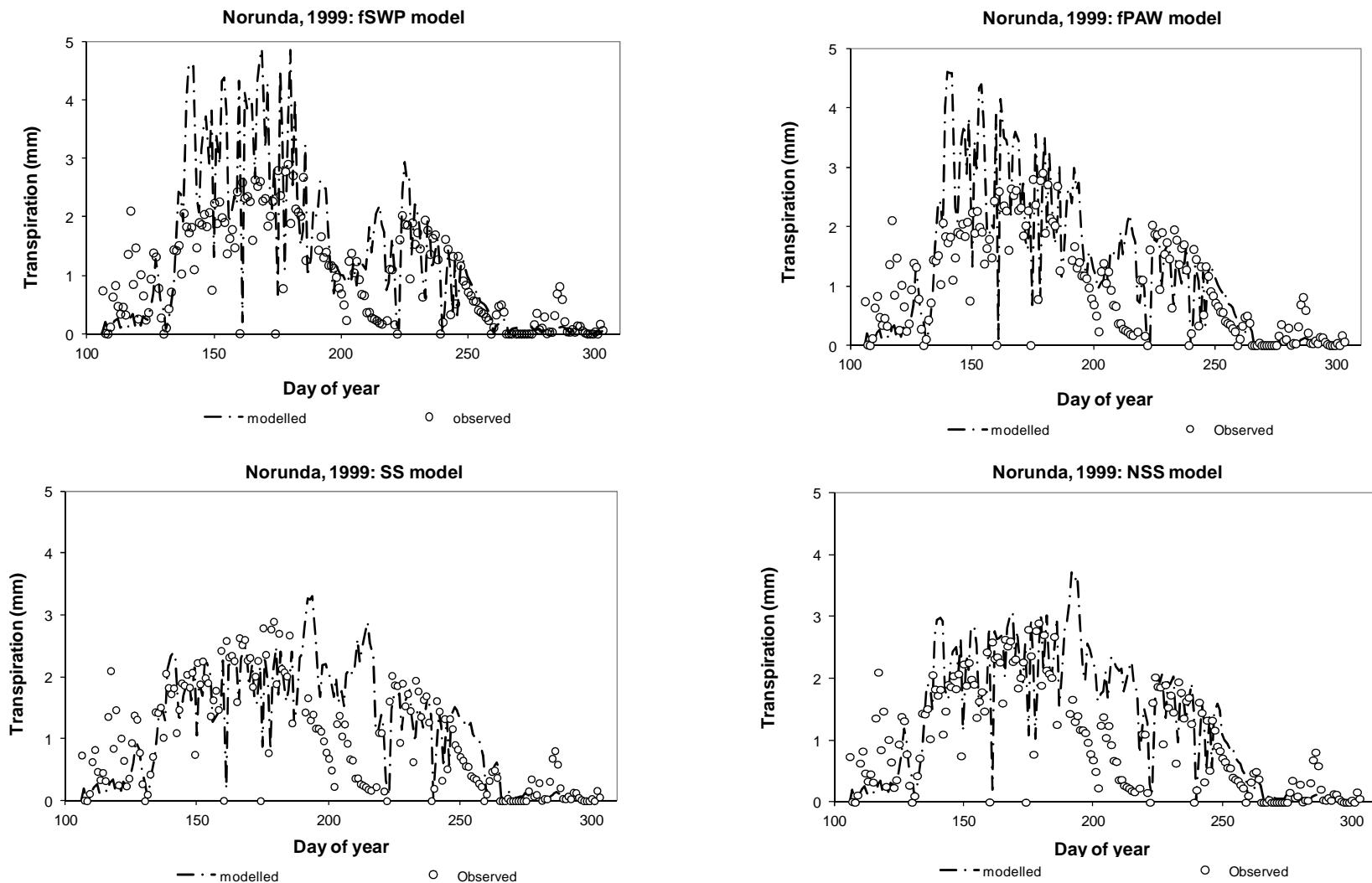


Figure S10. Comparison of observed and modelled transpiration in 1999 for a mixed Norway spruce and Scots pine stand at Norunda using four methods that relate soil water to g_{sto} (see Methods section for details).

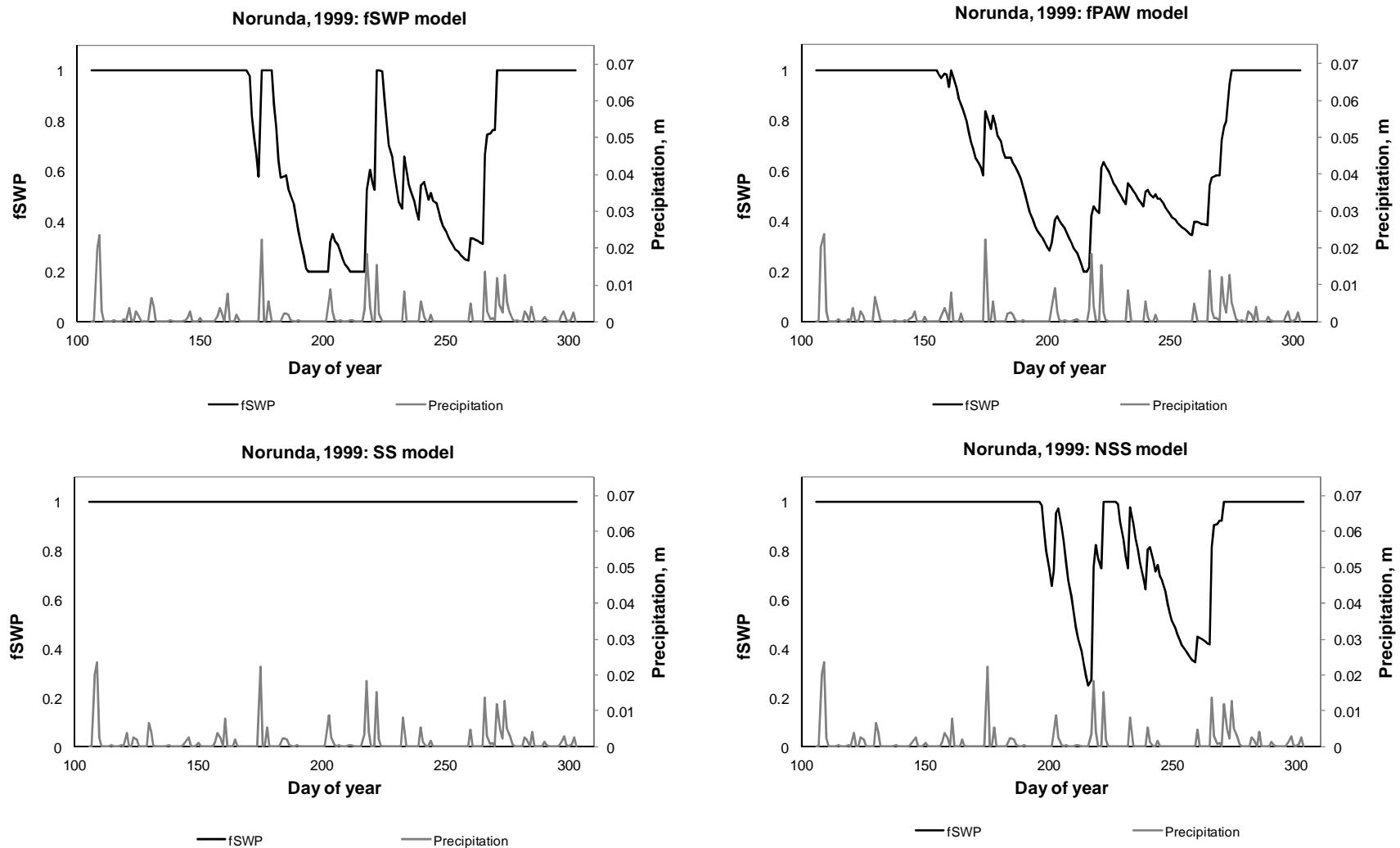


Figure S11. Precipitation and f_{SWP} in 1999 for a mixed Norway spruce and Scots pine stand at Norunda using four methods that relate soil water to g_{sto} (see Methods section for details).

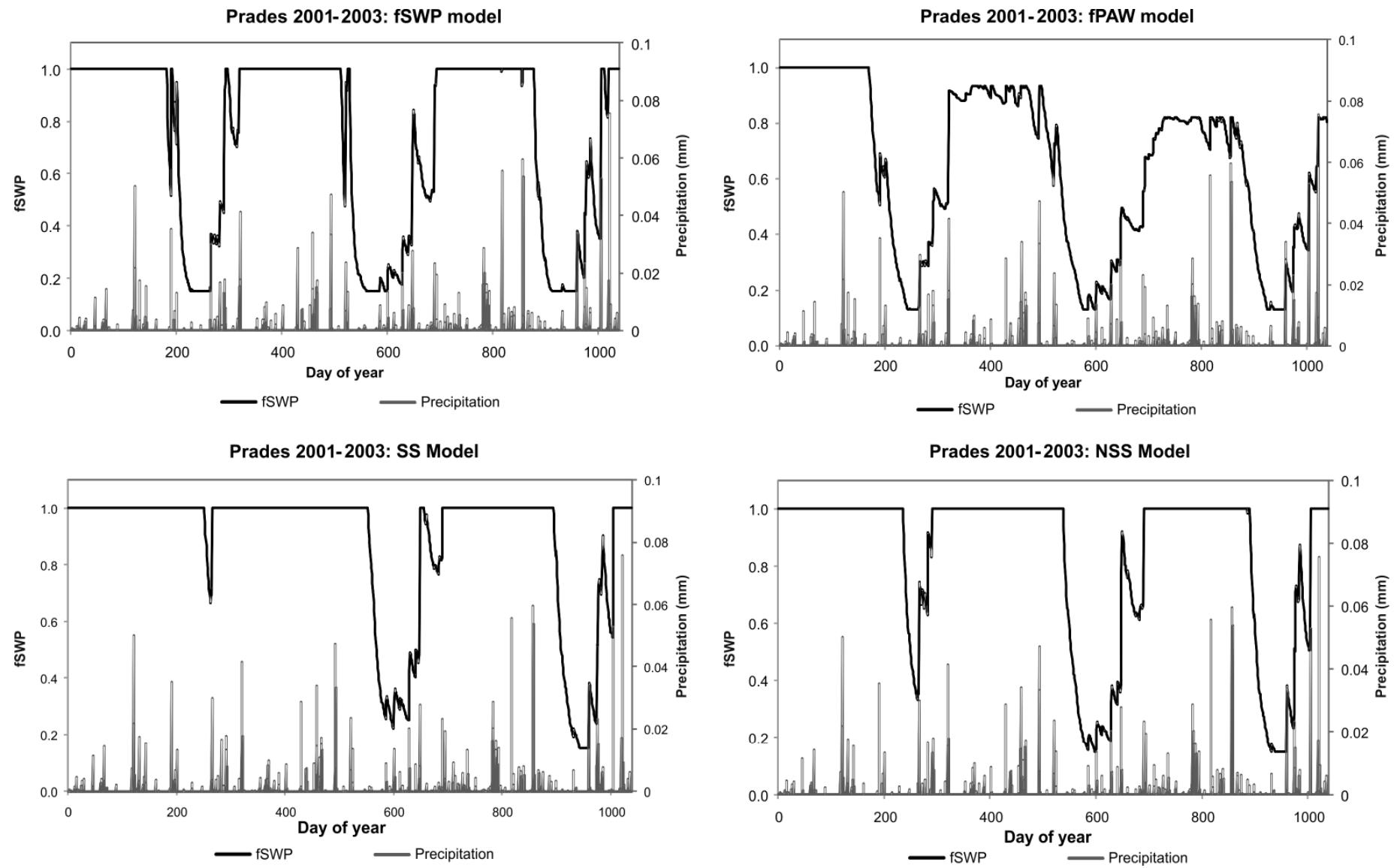


Figure S12. Precipitation and f_{SWP} in 2001, 2002 and 2003 for a holm oak stand at Prades using the f_{SWP} method that relate soil water to g_{sto} (see Methods section for details).

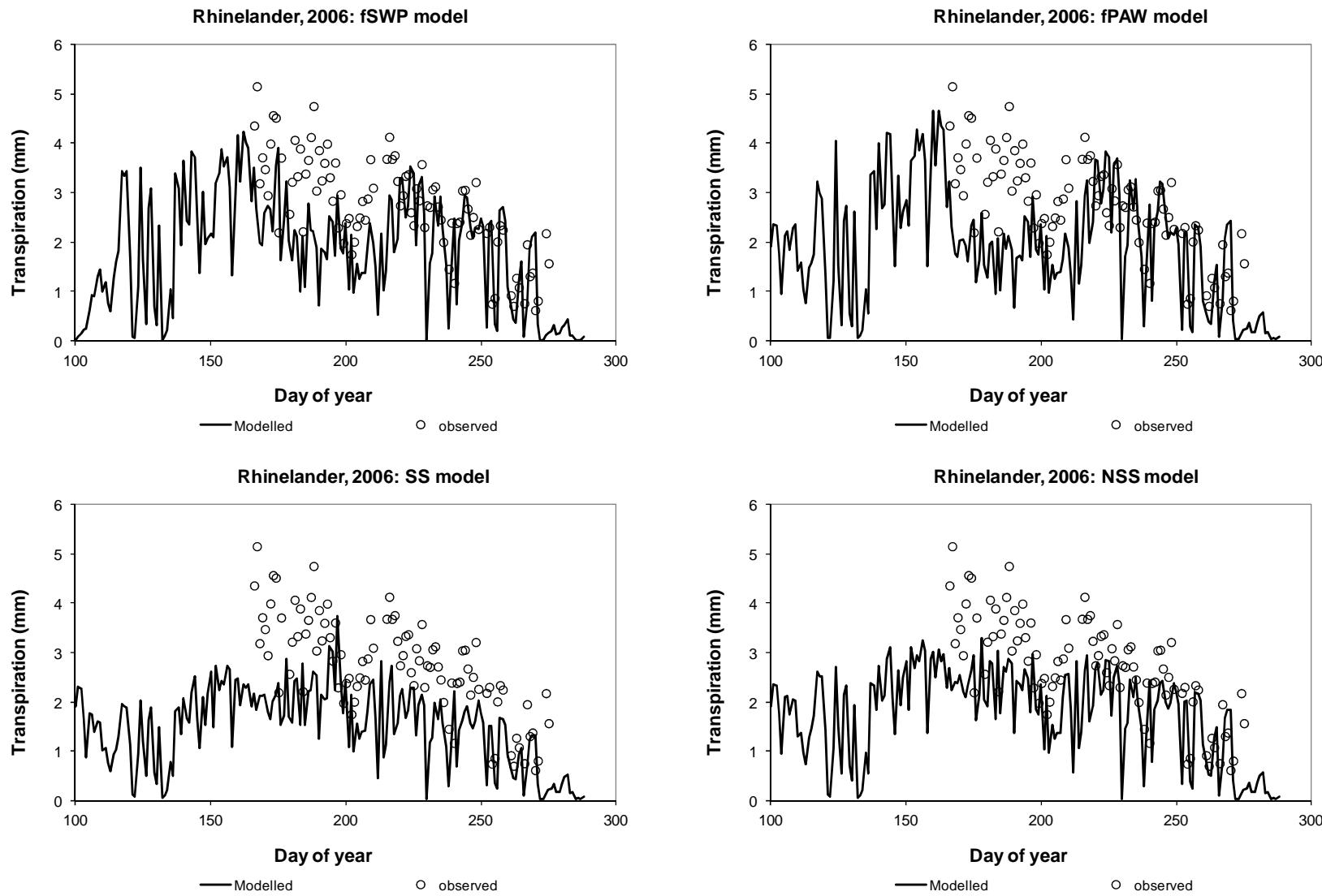


Figure S13. Comparison of observed and modelled transpiration in 2006 for a mixed aspen-birch stand at Rhinelander using four methods that relate soil water to g_{sto} (see Methods section for details).

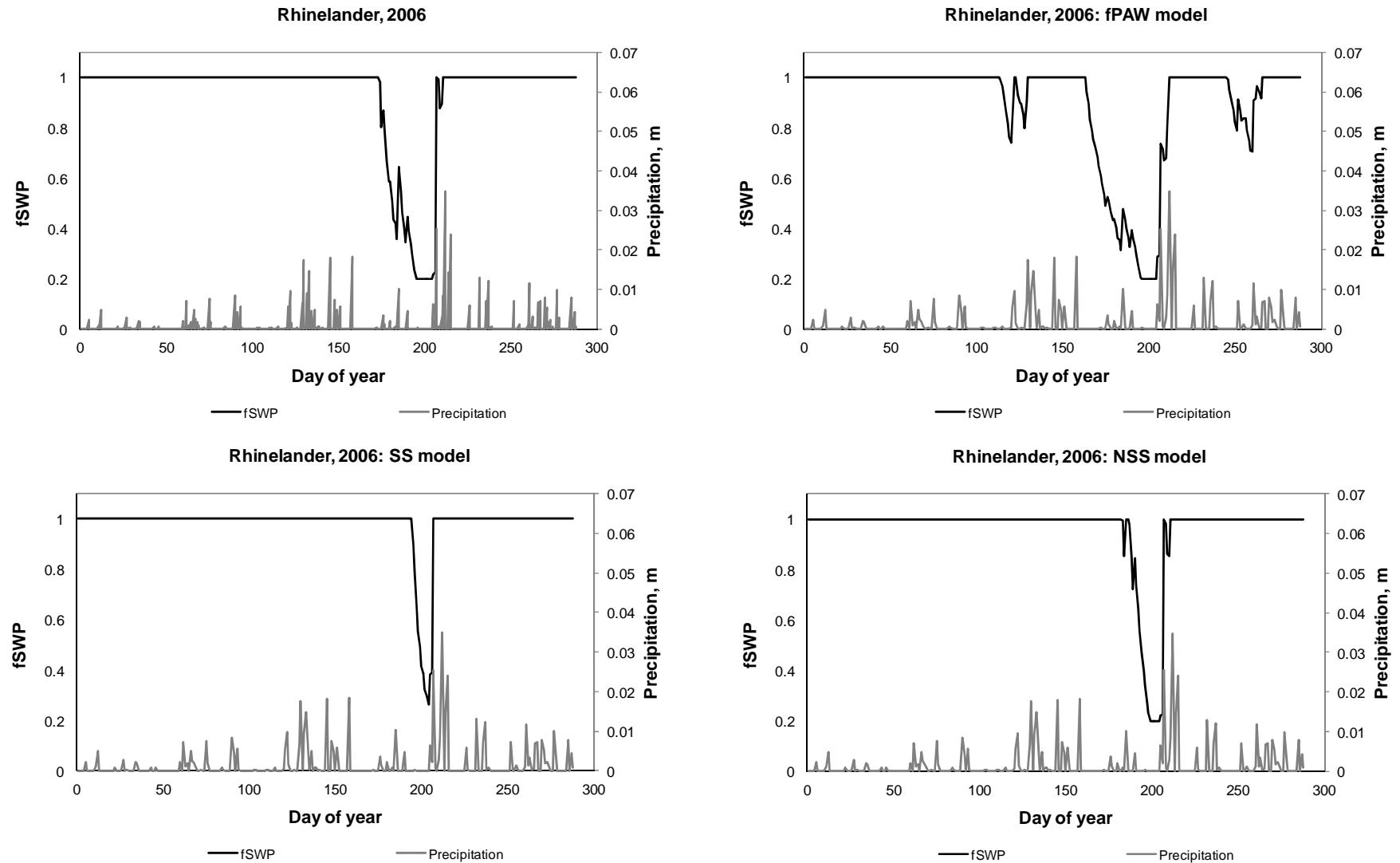


Figure S14. Precipitation and f_{SWP} in 2006 for a mixed aspen-birch stand at Rhinelander using four methods that relate soil water to g_{sto} (see Methods section for details).

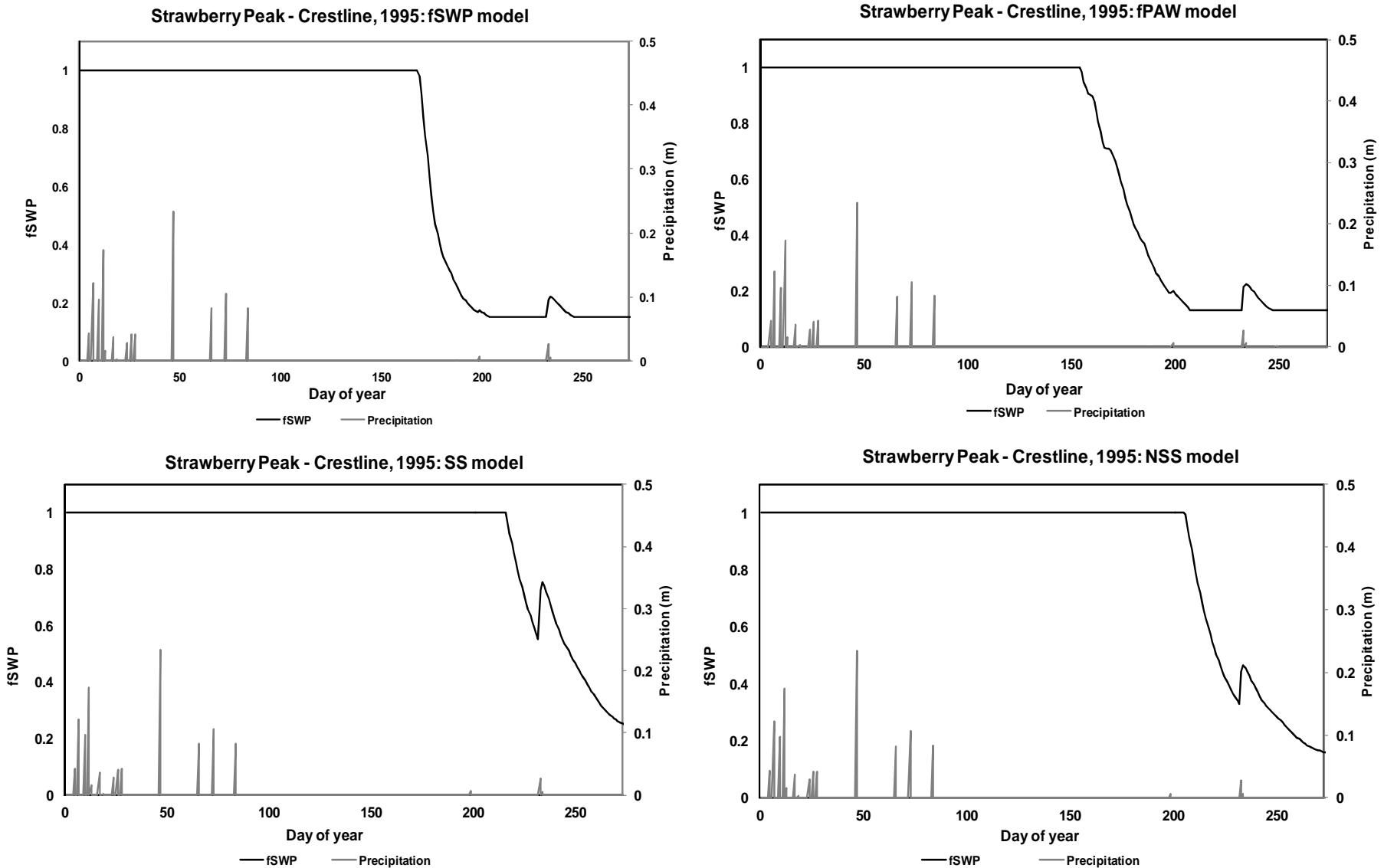


Figure S15. Precipitation and f_{SWP} in 1995 for an evergreen oak stand at Strawberry Peak/Crestline using four methods that relate soil water to g_{sto} (see Methods section for details).