Supplementary Material

Solitary wave characteristics on the fine structure of mesospheric sporadic sodium layer

Shican Qiu\*, Mengxi Shi, Hamad Yousof, Willie Soon, Mingjiao Jia, Xianghui Xue, Tao Li, Peng Ju, Xiankang Dou

**\* Correspondence:** Shican Qiu: scq@ustc.edu.cn and Xiankang Dou: dou@ustc.edu.cn

# Additional Supporting Information

Caption for Movie S1

Movie S1. A dynamic video of the variation of column vectors of $\overleftrightarrow{W}$ and $\overleftrightarrow{S}$ with time. Left: the simulation results denoted as matrix $\overleftrightarrow{W}$. Right: the net anomaly evolution of the NaS obtained by observation data matrix $\overleftrightarrow{M}$ subtracting the Gaussian distribution model $\overleftrightarrow{G}\_{0}$, denoted as $\overleftrightarrow{S}$. The numerical simulation results $\overleftrightarrow{W}$ are in good agreement with the evolution process $\overleftrightarrow{S}$ of the NaS.