

# **Supplement to: Estimation of seismic moment tensors using variational inference machine learning**

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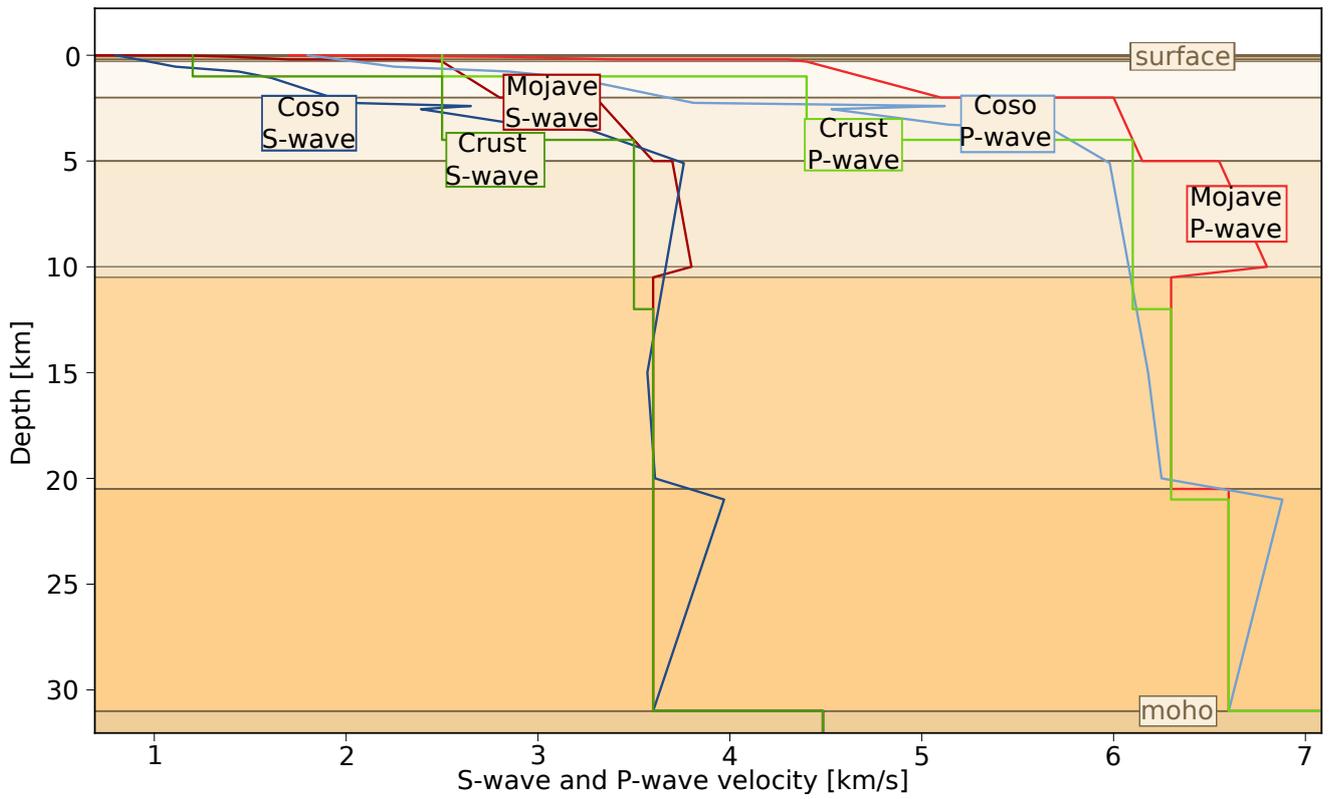


Figure S1: 1-D Earth structure profiles that were used for the calculation of Green's functions.

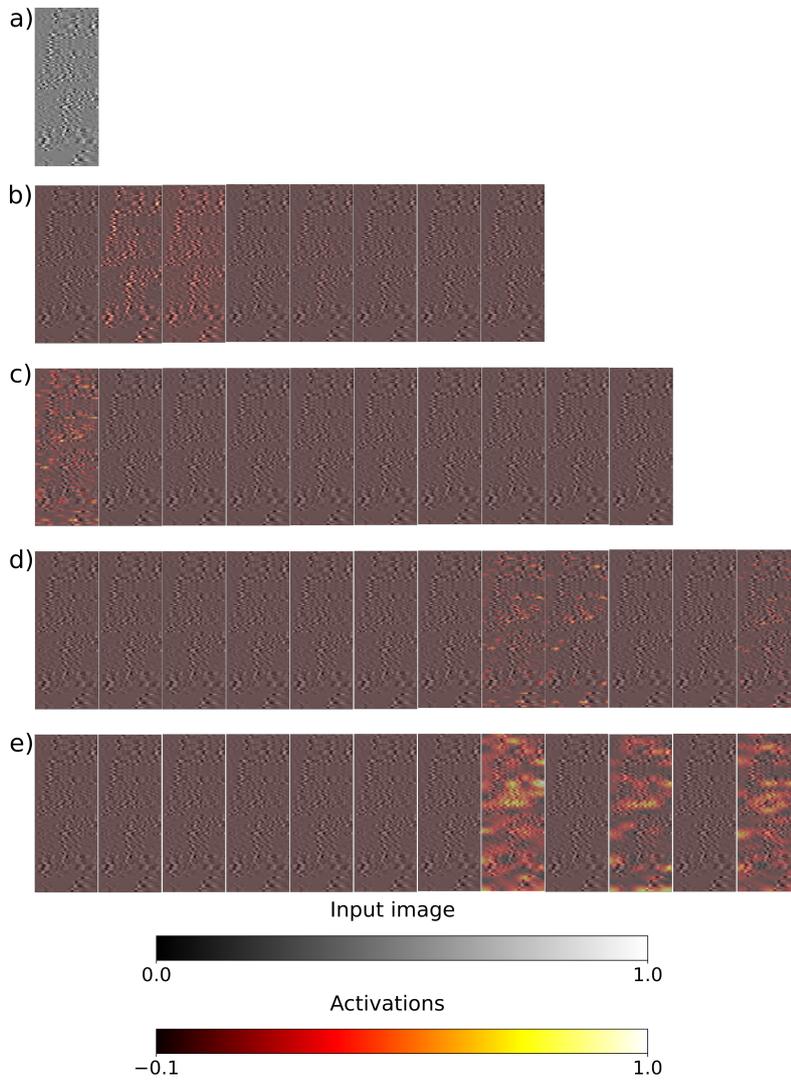


Figure S2: a) normalized input waveform example, b) exemplary activations of a) the first convolutional layer over time, c) the second convolutional layer over time, d) the third convolutional layer over the station components and e) the activation in the pooling layer.

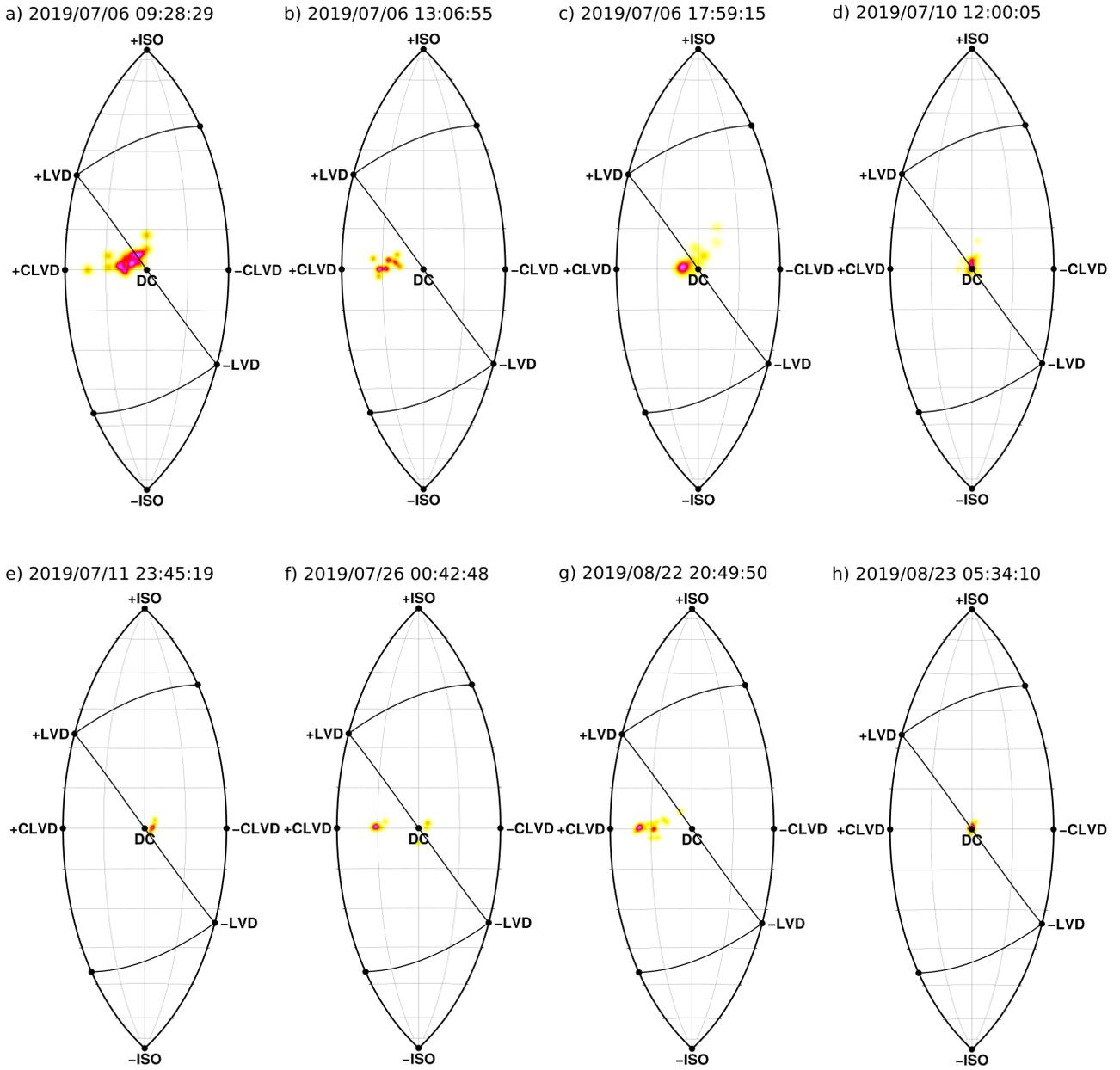


Figure S3: Lune plot for estimated full moment tensors including uncertainties in centroid location and time and uncertainties in the Earth structure (Fig. 4 in the main article). Shown are the 2-d marginals calculated on a sphere for the parameters  $v$  and  $w$  as the lune latitude and co-longitude, respectively. Red and pink colors show regions of high probability.

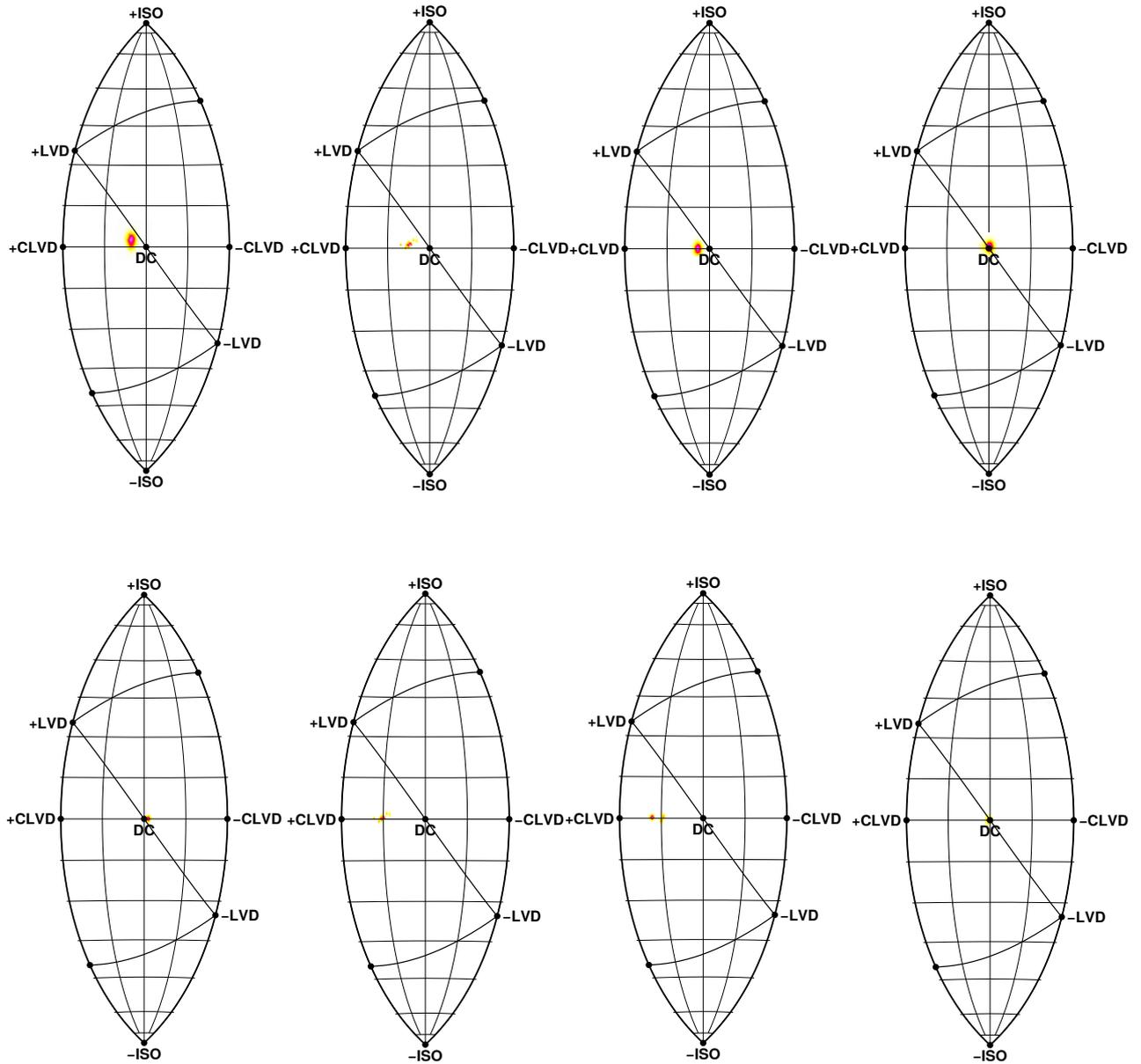


Figure S4: Luno plot for estimated full moment tensors including uncertainties in centroid location and time (Fig. 4 in the main article). Shown are the 2-d marginals calculated on a sphere for the parameters  $v$  and  $w$  as the luno latitude and co-longitude, respectively. Red and pink colors show regions of high probability.