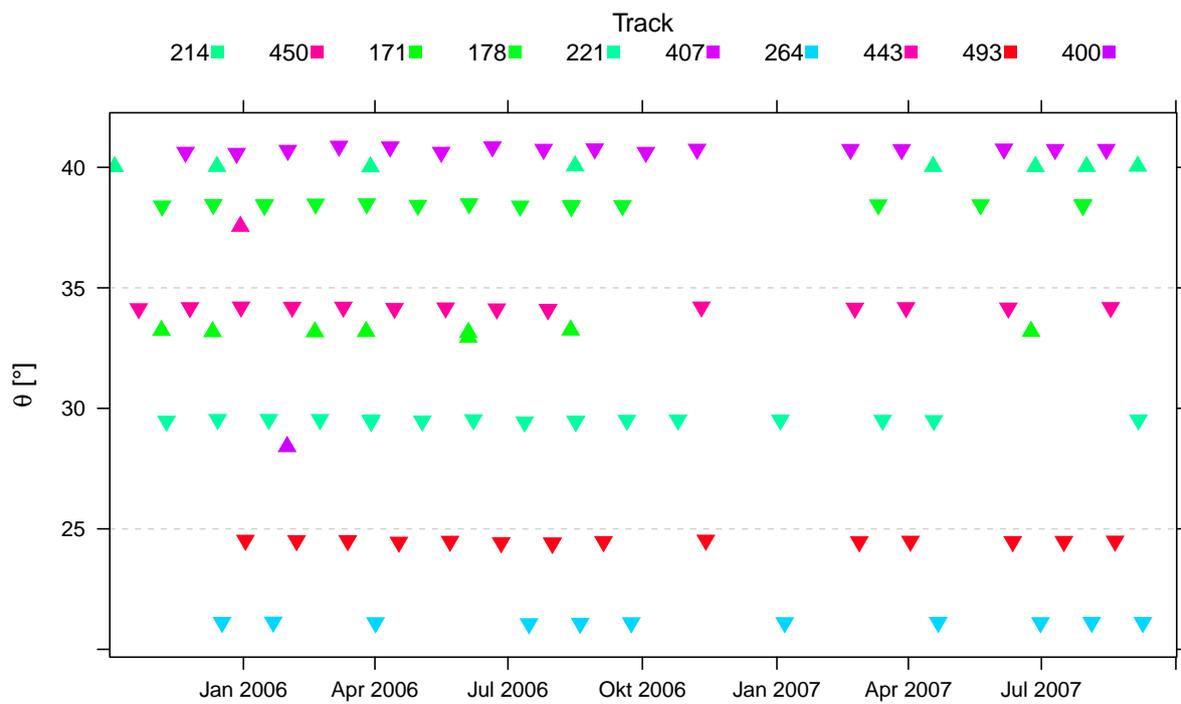
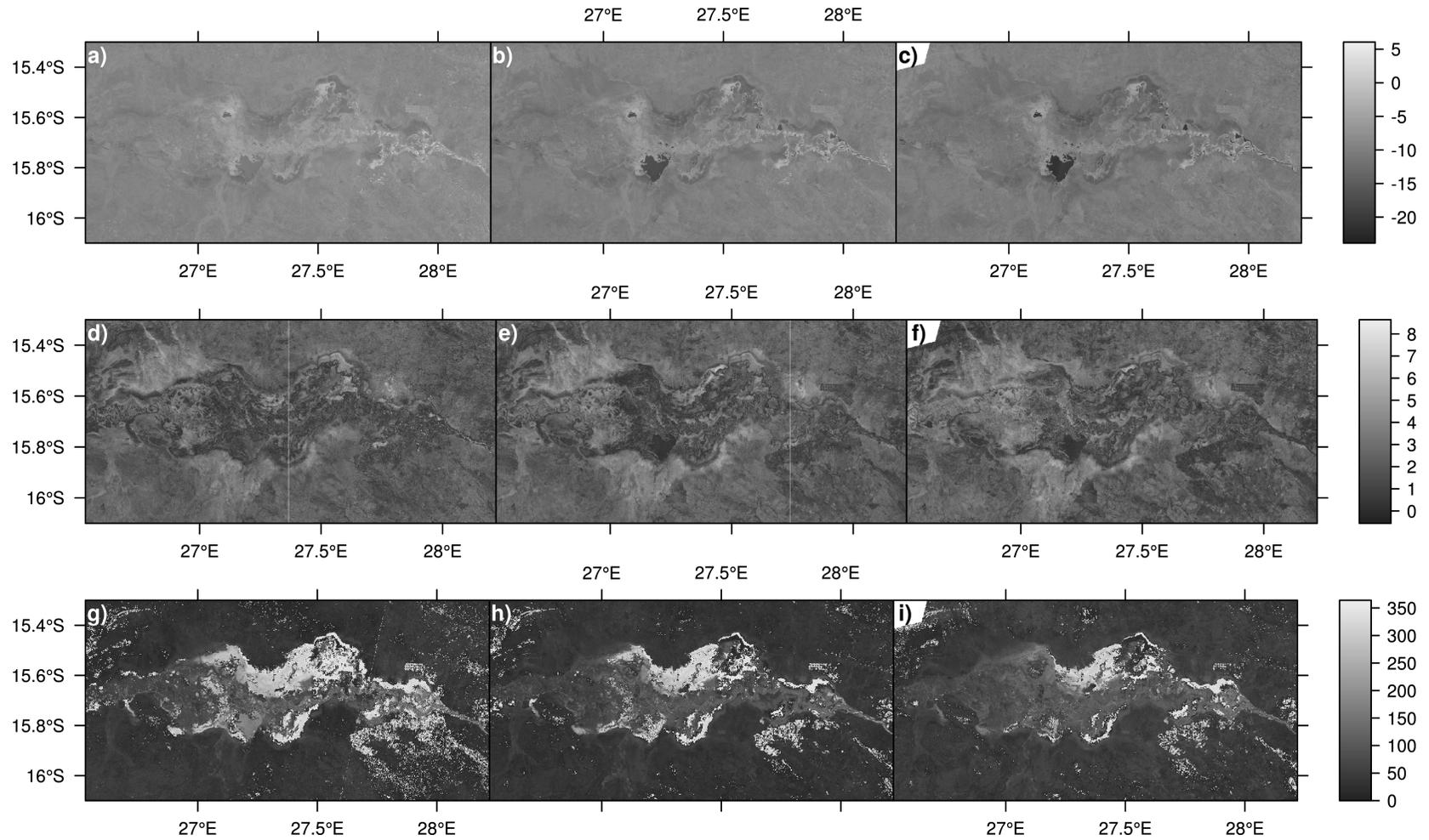


# Supplementary Materials: Mapping Wetlands in Zambia Using Seasonal Backscatter Signatures Derived from ENVISAT ASAR Time Series

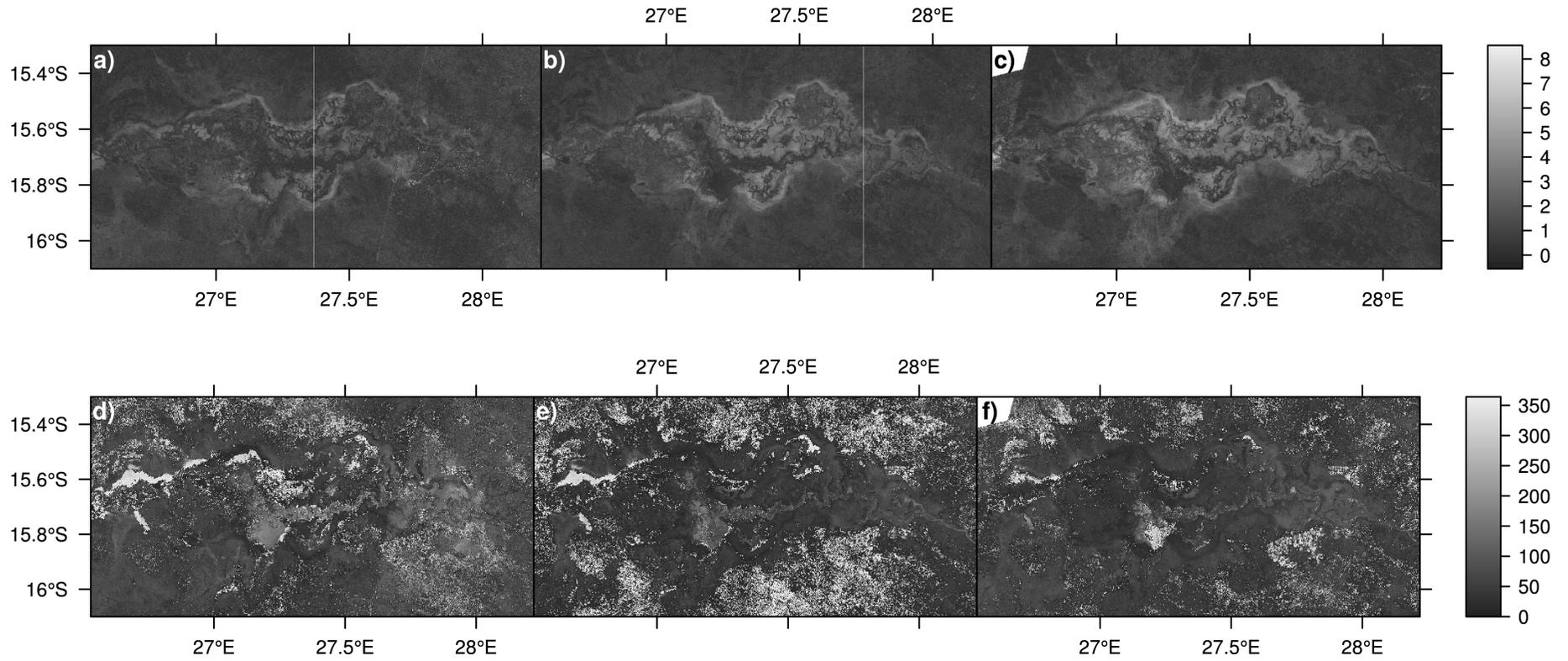
Stefan Schlaffer, Marco Chini, Denise Dettmering and Wolfgang Wagner



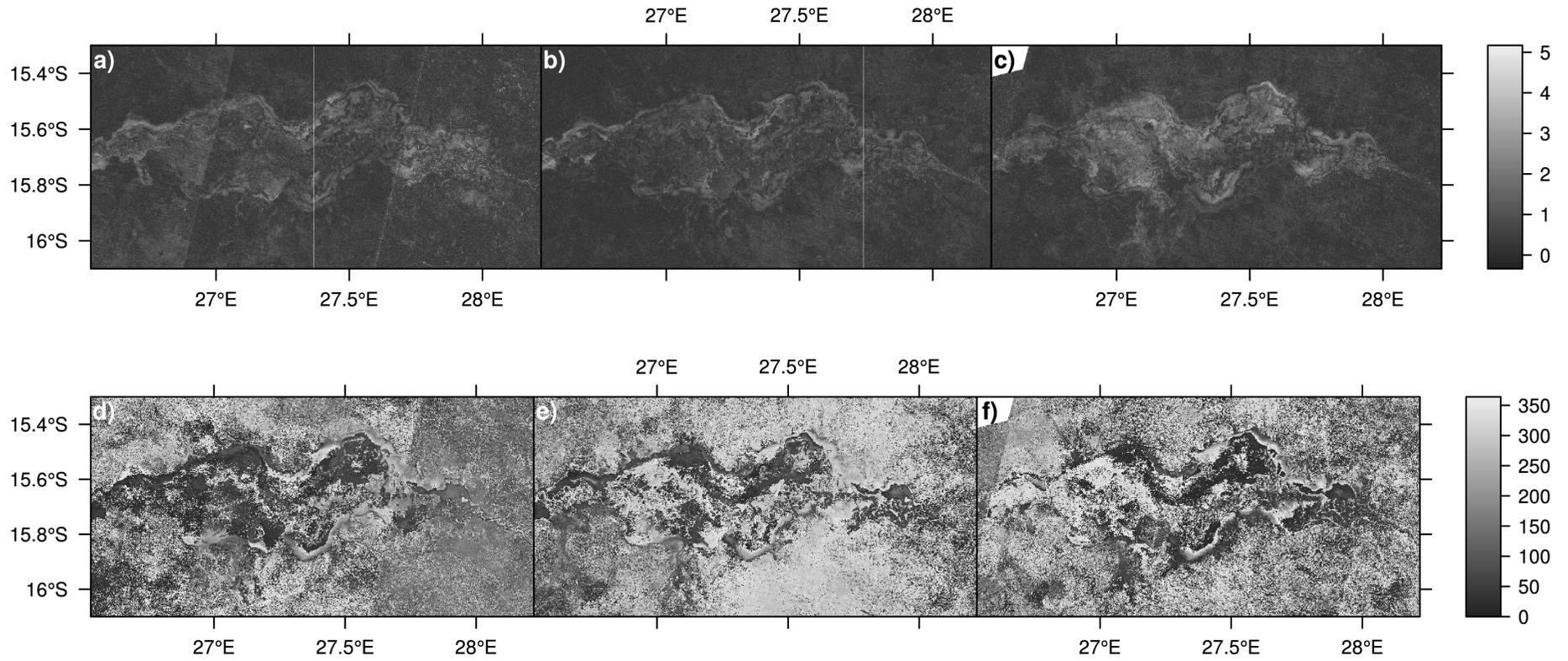
**Figure S1.** Local incidence angles of ASAR scenes averaged over the Kafue Flats. Triangles sharing the same colour belong to the same track. ▲ ascending, ▼ descending orbital node.



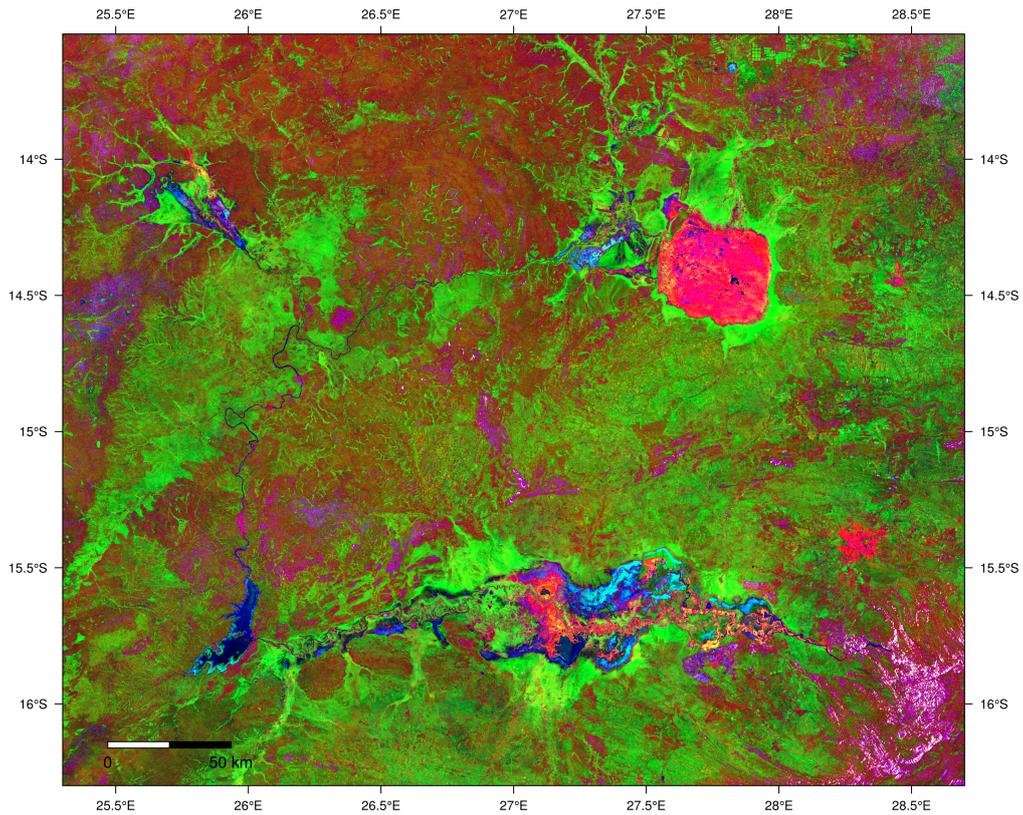
**Figure S2.** Harmonic model parameters (a)  $\bar{\sigma}^0$  (15°–25°) (dB); (b)  $\bar{\sigma}^0$  (25°–35°) (dB); (c)  $\bar{\sigma}^0$  (35°–45°) (dB); (d)  $A_1$  (15°–25°) (dB); (e)  $A_1$  (25°–35°) (dB); (f)  $A_1$  (35°–45°) (dB); (g)  $\phi_1$  (15°–25°) (DoY); (h)  $\phi_1$  (25°–35°) (DoY); (i)  $\phi_1$  (35°–45°) (DoY).



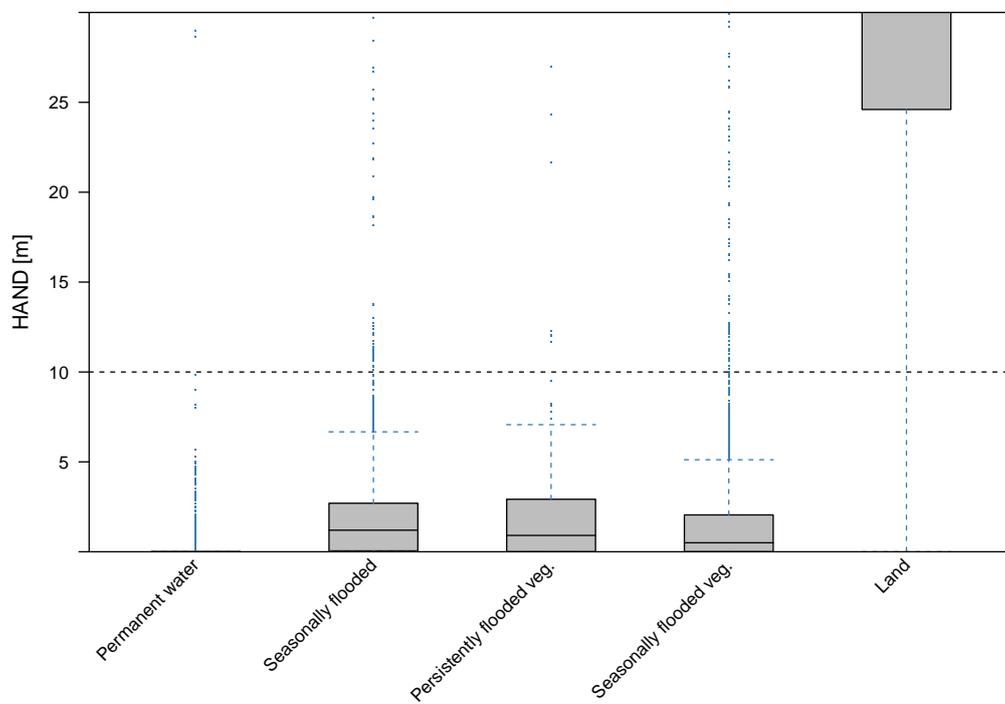
**Figure S3.** Harmonic model parameters. (a)  $A_2$  (15°–25°) (dB); (b)  $A_2$  (25°–35°) (dB); (c)  $A_2$  (35°–45°) (dB); (d)  $\phi_2$  (15°–25°) (DoY); (e)  $\phi_2$  (25°–35°) (DoY); (f)  $\phi_2$  (35°–45°) (DoY)



**Figure S4.** Harmonic model parameters (a)  $A_3$  ( $15^\circ-25^\circ$ ) (dB); (b)  $A_3$  ( $25^\circ-35^\circ$ ) (dB); (c)  $A_3$  ( $35^\circ-45^\circ$ ) (dB); (d)  $\phi_3$  ( $15^\circ-25^\circ$ ) (DoY); (e)  $\phi_3$  ( $25^\circ-35^\circ$ ) (DoY); (f)  $\phi_3$  ( $35^\circ-45^\circ$ ) (DoY).



**Figure S5.** RGB composite of harmonic model components used for wetland extent mapping in the Kafue River Basin (R:  $\sigma^0$ ; G:  $A_1$ ; B:  $\phi_1$ ).



**Figure S6.** Box-Whisker-Plots showing median (line) and interquartile range (box) of the Height Above Nearest Drainage (HAND) index for each of the derived classes. Whiskers span up to 1.5 times the interquartile range. The horizontal line shows the selected threshold value used for masking.