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Fires increase Amazon forest productivity through changes to diffuse radiation

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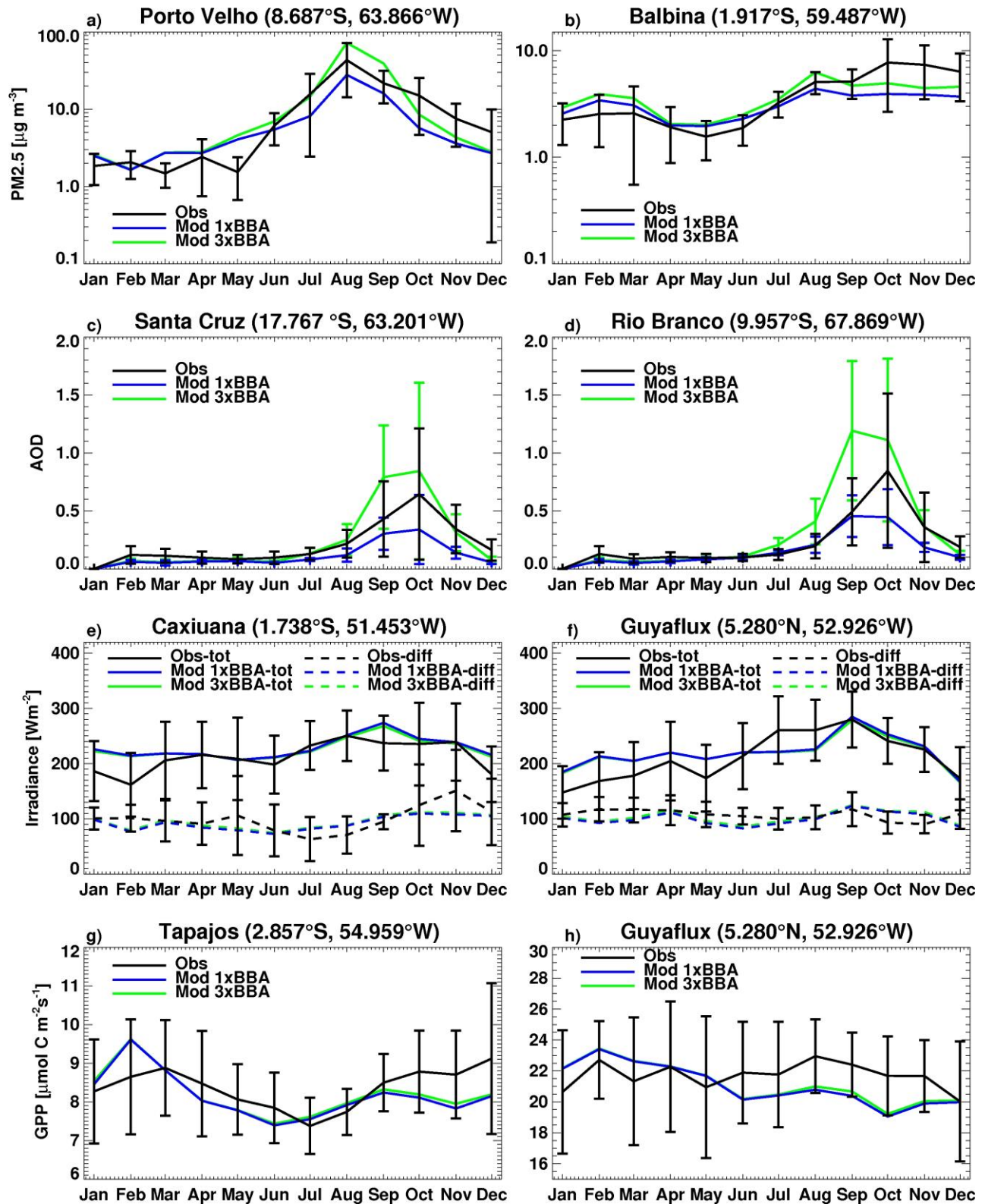


Figure S1. Comparison of observed (black lines, with error bars showing one standard deviation in daily mean), 1x BBA modelled (blue) and 3x BBA modelled (green) PM2.5 (a, b), AOD (c, d), shortwave total & diffuse radiation (e, f) and GPP (g, h) at various Amazonian sites (locations shown in Figure 3a). The Guyaflux GPP values correspond only to 9 a.m.-5 p.m. local time.

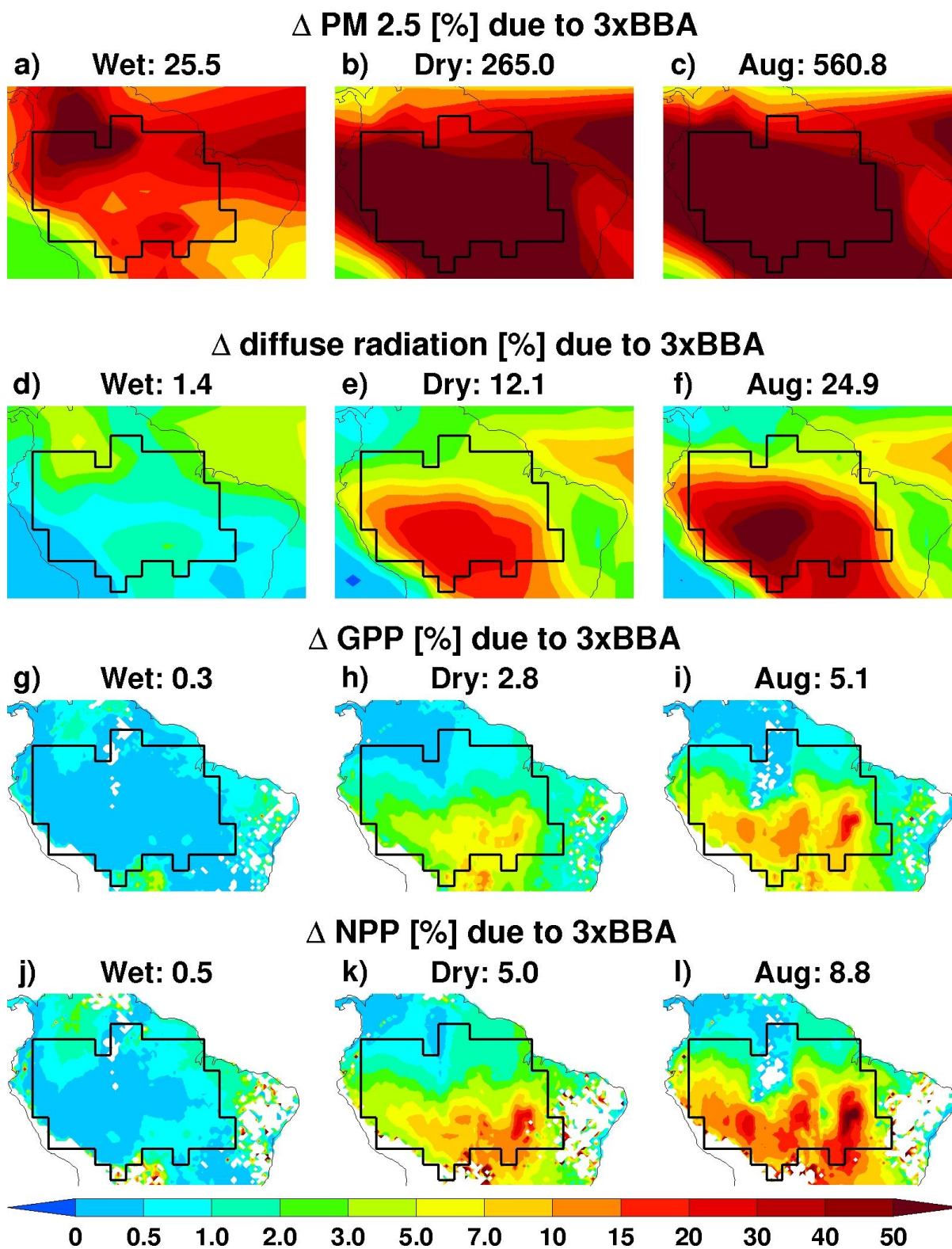


Figure S2. Modelled 1998-2007 mean percentage changes in PM_{2.5}, diffuse radiation, GPP and NPP in the Wet season (left panels), Dry season (middle panels) and August (right panels) due to 3xBBA emissions. Values above panels are Amazon-basin (black line area boundary shown) averages.

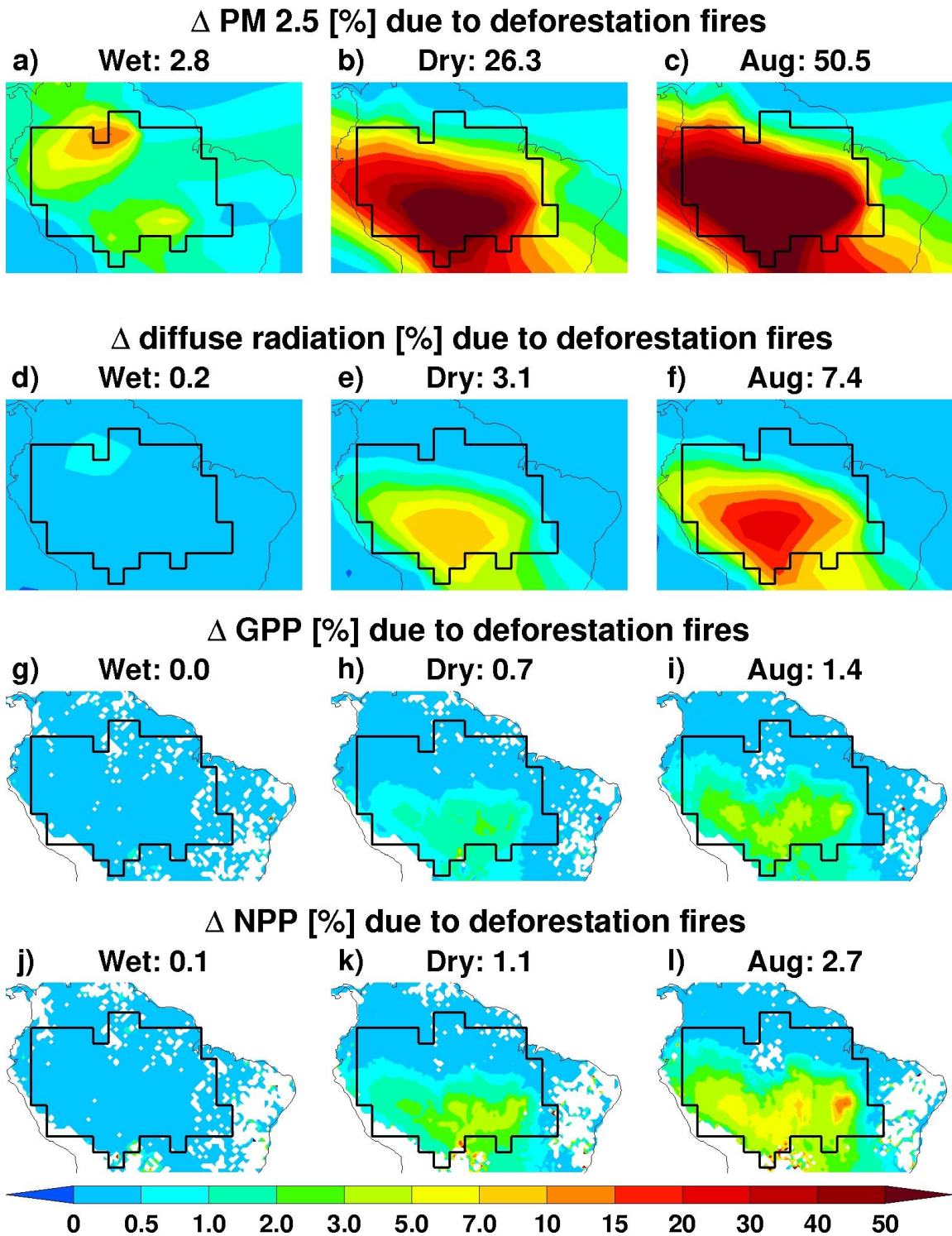


Figure S3. Modelled 1998-2007 mean percentage changes in PM_{2.5}, diffuse radiation, GPP and NPP in the Wet season (left panels), Dry season (middle panels) and August (right panels) due deforestation fires. Values above panels are Amazon-basin (black line area boundary shown) averages.

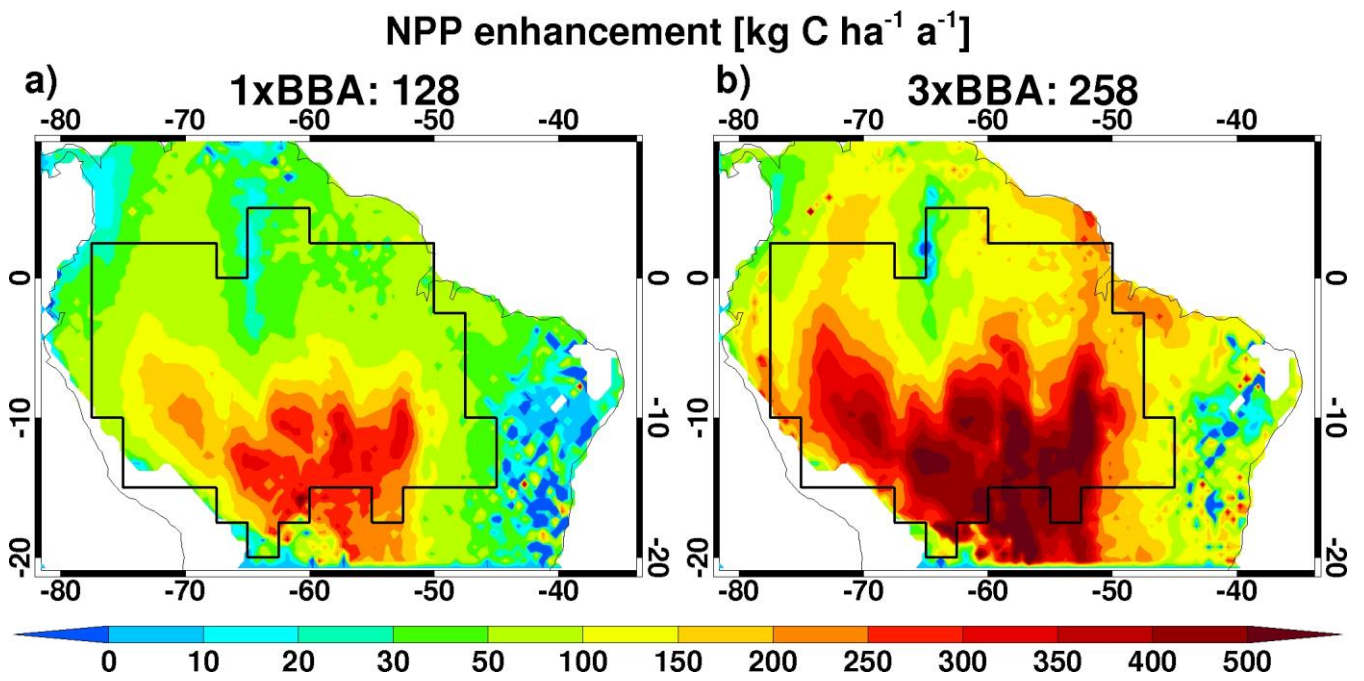


Figure S4. Modelled 1998-2007 mean increase in NPP due to all BBA (a) and three times as much BBA (b). Values above panels are Amazon-basin (black line area boundary shown) averages.

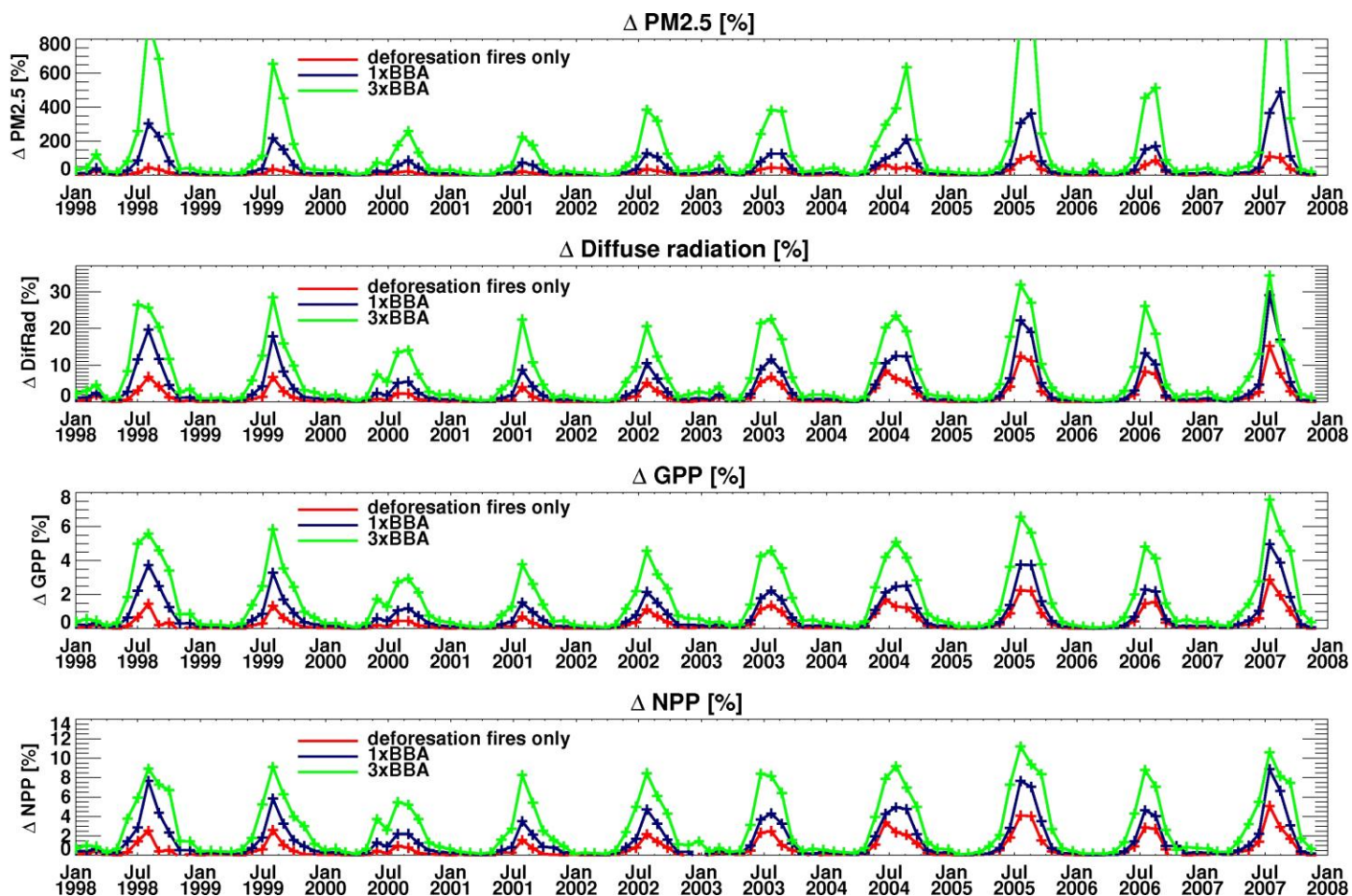


Figure S5. Modelled Amazon-basin monthly mean percentage changes in PM_{2.5}, diffuse radiation, GPP and NPP due to deforestation fires (red lines), 1xBBA (blue line) and 3xBBA (green line) emissions. The August ΔPM_{2.5} values for 1998, 2005 and 2007 peak at ~900%, 1100% and 1500%, respectively.

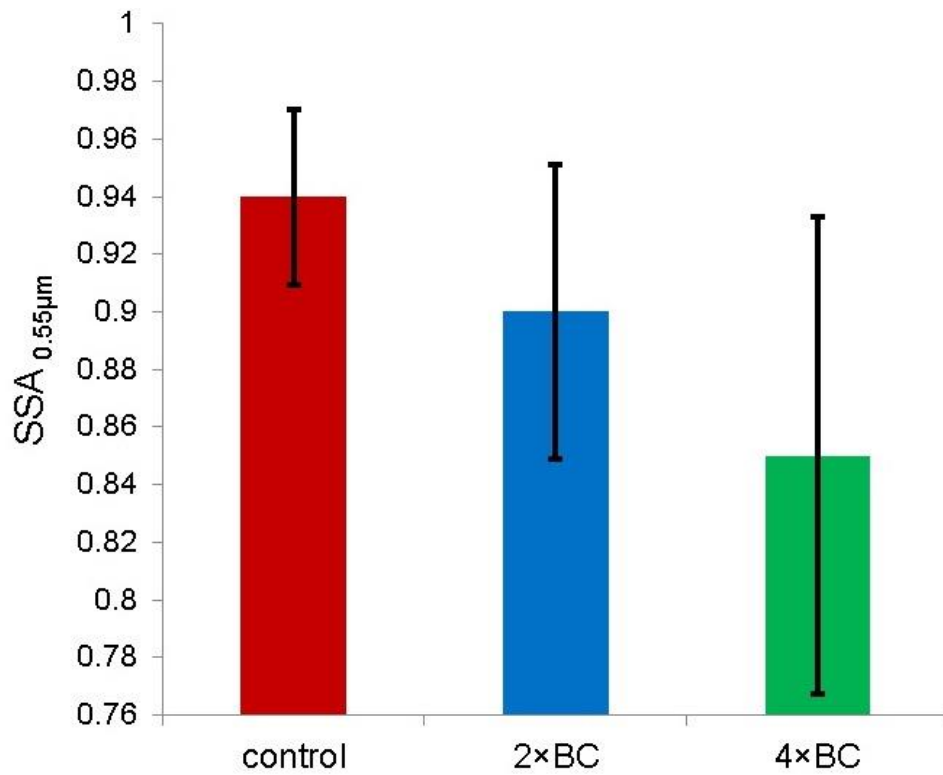


Figure S6. Modelled 1998-2007 mean single scattering albedo at 0.55 μm corresponding to Amazon-basin dry season averages for the control simulation and two additional simulations where BC emission was increased by factors of 2 and 4. The error bars show one standard deviation of all values.