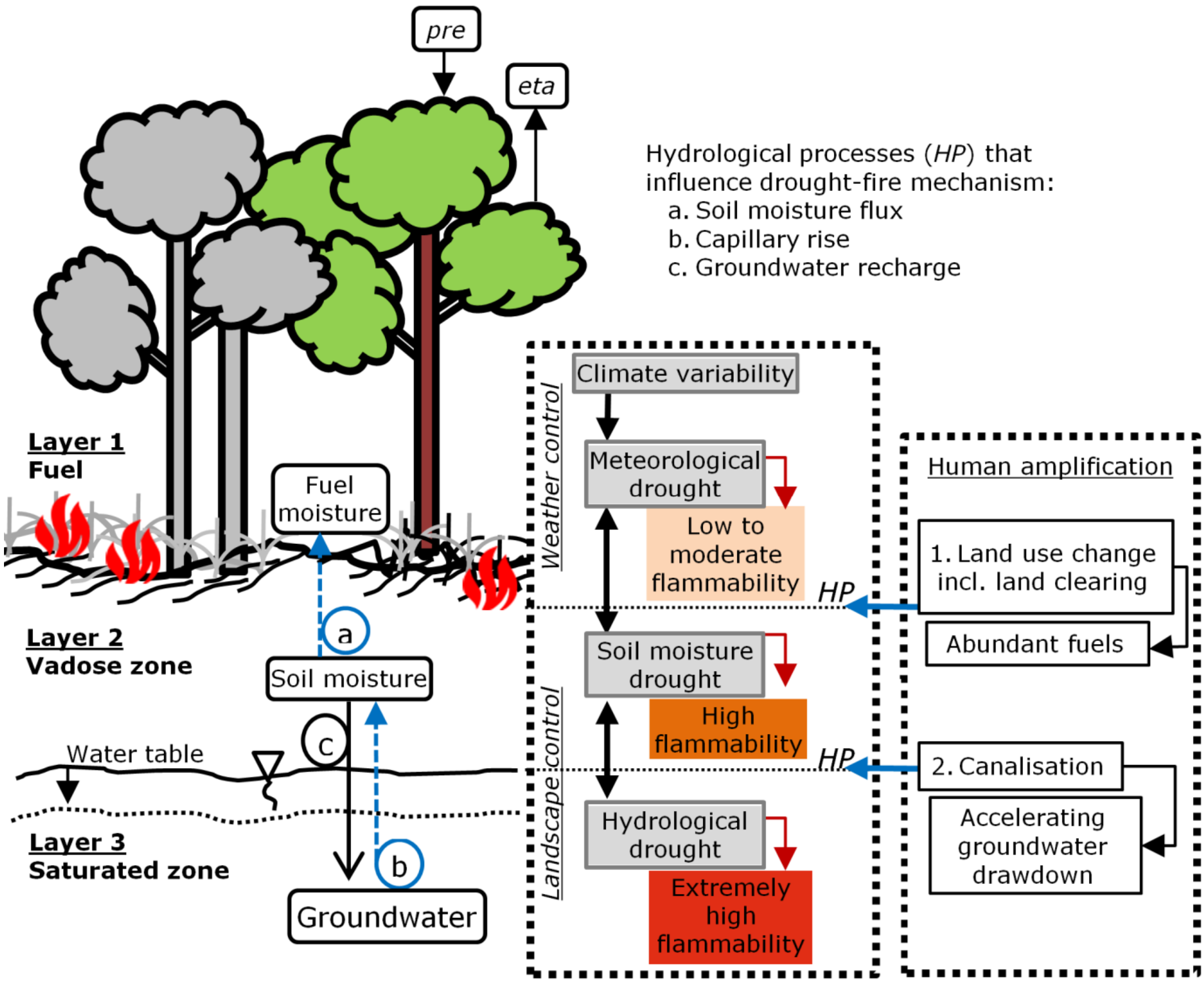

Figure 1: The mechanisms of the drought-fire link are explained through the dynamics of the groundwater table fluctuation, which responds to soil moisture (a), capillary rise (b) and groundwater recharge (c) driven by weather changes. During a period with no rainfall (meteorological drought), soil moisture is depleted (soil moisture drought) to fulfil the evapotranspiration flux, hence groundwater recharge is reduced or even becomes negatives (capillary rise, b). Short meteorological drought is characterised by low flammability (how easily the fuel can ignite). When the meteorological drought lasts longer, the continuous capillary rise accelerates groundwater table decline (hydrological drought), until a depth where the capillary rise becomes insufficient to feed soil moisture (layer 2). Then the soil moisture flux (a) is affected, which leads to drying out the topsoil and the fuel layer stimulating drought stress. This stress leads to shedding of leaves by the evergreen forest and to accumulation of dry litter on the forest floor (fuel layer). Further persistent moisture depletion will ease ignition in layer 1 (usually human-induced) and subsequent spreading of fire. The combined effect of drying out the fuel layer and hydrological drought leads to low moisture in the organic soil (layer 2), which substantially favours peat smouldering combustion (extremely high flammability). Human activities through land clearing change land use, and wetland canalisation accelerate the (hydrological) drying process (in layers 1 and 2) by providing abundant fuels and lowering of groundwater tables. Moreover, the dryer soil increases accessibility, which makes land management activities easier to carry out.

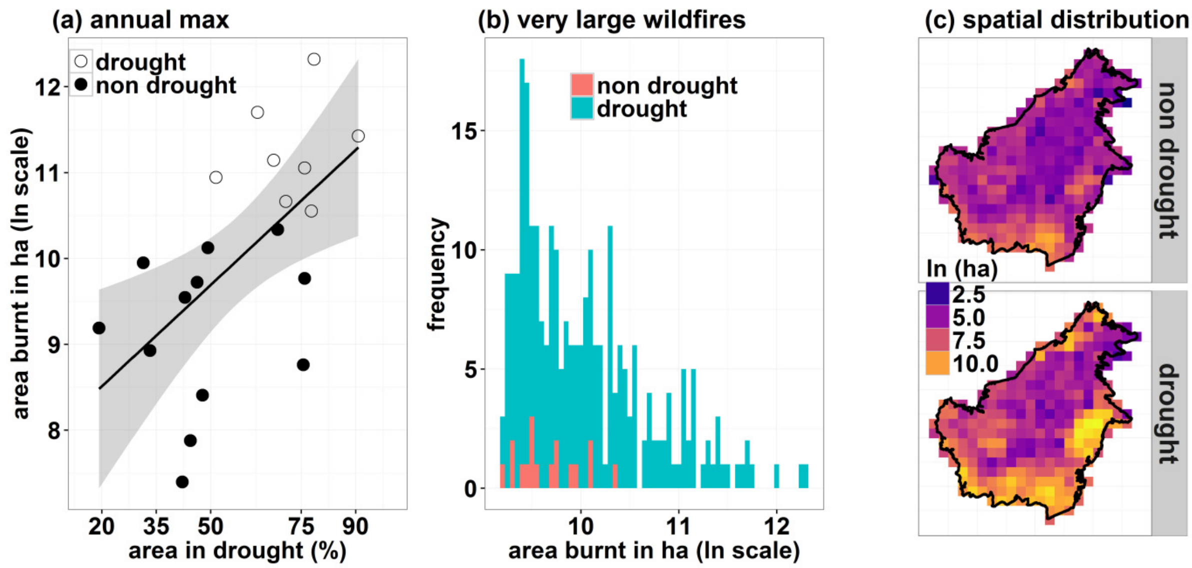

Figure 2: Area burnt by wildfires in Borneo during drought and non-drought years for the period 1996-2015; (a) Relation between the annual maximum of area burnt and the percentage of the annual maximum area in drought. The graph indicates that area burnt increases substantially during drought years; (b) Frequency of area burnt by very large wildfires (>10,000 ha); (c). Spatial distribution of the maximum value of wildfire area burnt at 0.5° spatial resolution. The figures clearly show that during hydrological drought years, fire area burnt expands. The unit of area burnt is in ha (natural logarithmic).

Figure 3: Predicted area burnt for various El Niño strengths (see Methods) using two model ensembles (CLIM and H-CLIM). For each ensemble, two different predictions are provided, namely the mean (upper) and maximum values of all grid cells for