



Fig. 15 ‘Burning rivers’ summarizing the authors’ general assessment of the potential of a transition of each system into a state that differs qualitatively from their present state. Colour coding represents the authors’ assessment of the likelihood of a transition for different global temperature increase. The width of the column represents the authors’ confidence in their assessment, i.e. the narrower the ‘river’ the less confident the experts are in their respective assessment. For most systems the risk of tipping increases with temperature along with the confidence in such an assessment. An exception is the potential collapse of the Atlantic overturning circulation. Such a transition depends on the freshwater inflow into the North Atlantic which is only indirectly related to the global mean temperature increase through Greenland melting and precipitation changes. Especially because of uncertainty with respect to future precipitation changes, confidence in the tipping potential for the THC does not increase with temperature. The risk of reaching a tipping point in Arctic ozone depletion will become insignificant when chlorine levels drop below 1980 levels which is projected to occur around 2060 (WMO 2007; SPARC 2010). In the specific case of ozone depletion there exist significant uncertainty on the nature of the state to which the atmospheric circulation might revert to. All other systems are cryospheric and thus the likelihood of a transition increases with temperature. Due to the possibility that a partial disintegration of the WAIS in the Amundson Sea sector might have been already initiated the corresponding confidence that no transition has occurred for zero temperature increase is slightly reduced