This directory contains the code for one particular sensitivity analysis of the planets simulation:

Name: worst-case planet

Description: The performance of this artificial planet is a check that the simulation works as expected. This is a least likely planet to remain stable, it is expected. dT/dt is forced to a maximum negative value (maximum rate of decrease of temperature) at all temperature values below the mid-point of the habitable range, and to a maximum positive value (maximum rate of increase of temperature) at all temperature values above the mid-point of the habitable range. So the planet heats up rapidly as soon as it starts to get too hot, and cools down rapidly as soon as it starts to get too cold. There is therefore runaway warming and runaway cooling either side of the midpoint. This is implemented by forcing the planet to have 20 nodes, for the first 10 of which f = -300 ᵒC ky-1 and for the second 10 of which f = +300 ᵒC ky-1. For this SA, randomly different starting temperatures and perturbations are calculated each time. However, there is no long-term forcing (trend = 0) and the numbers of perturbations are set to their minimum values, i.e. 0 big, 40 mid-sized and 4000 little.

The following files were altered in order to implement this sensitivity analysis:

determine\_feedbacks.m

determine\_trend.m

determine\_neighbourhood.m

set\_constants.m