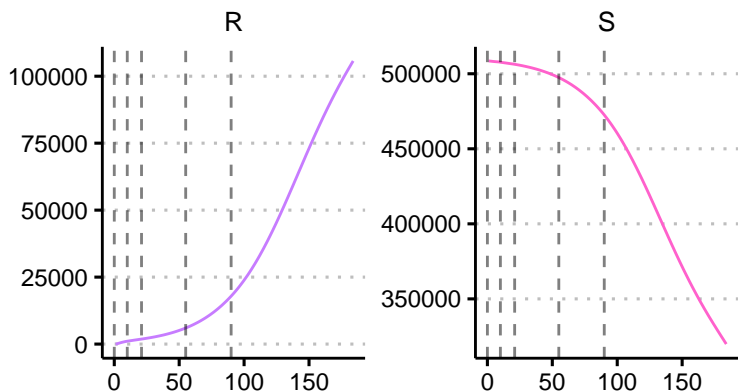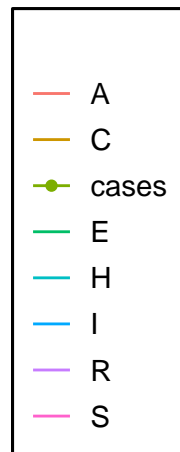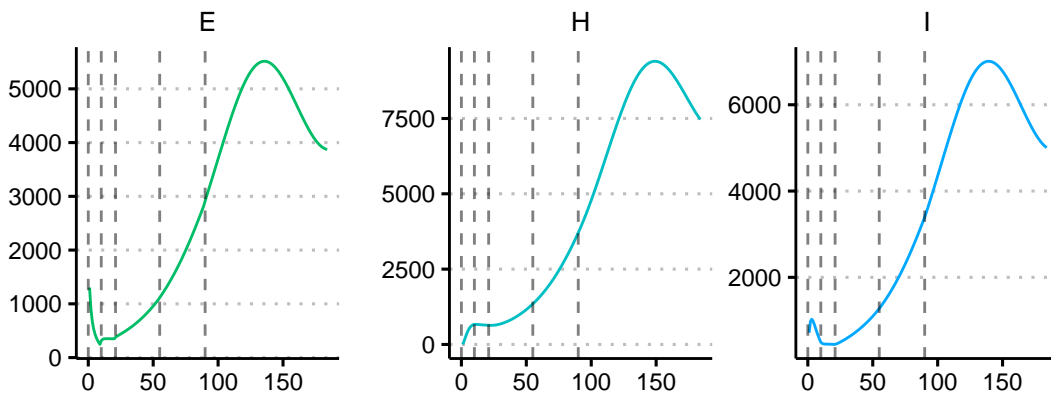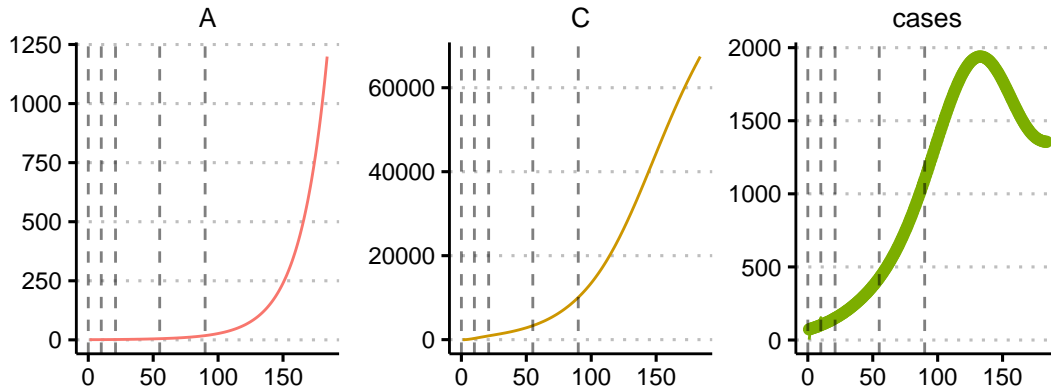SEARCHI Model: Incidence Trajectory with Calibrated Params (macp