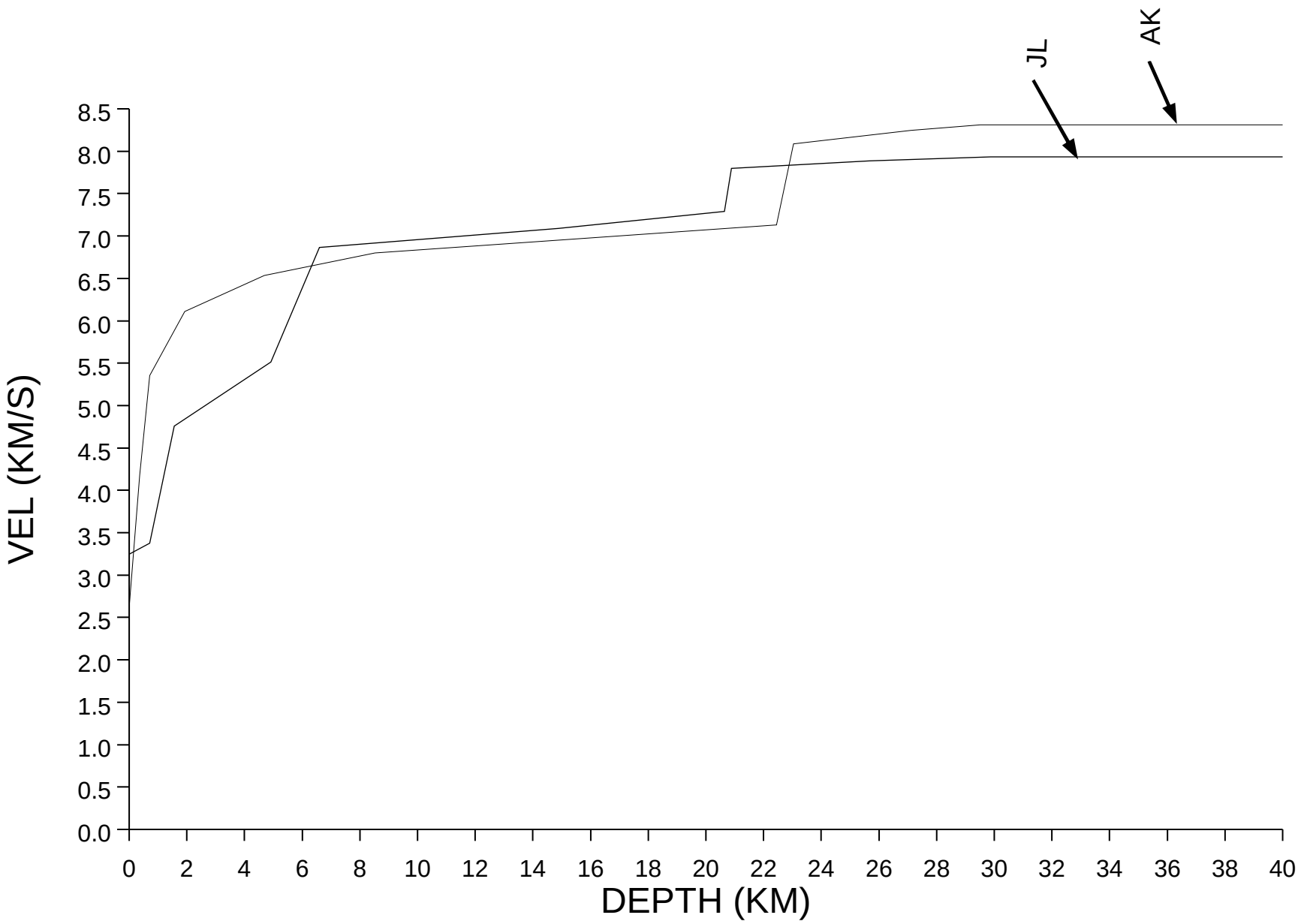AK and JL VEL_1D