Supporting Information

Paaijmans et al. 10.1073/pnas.0903423106

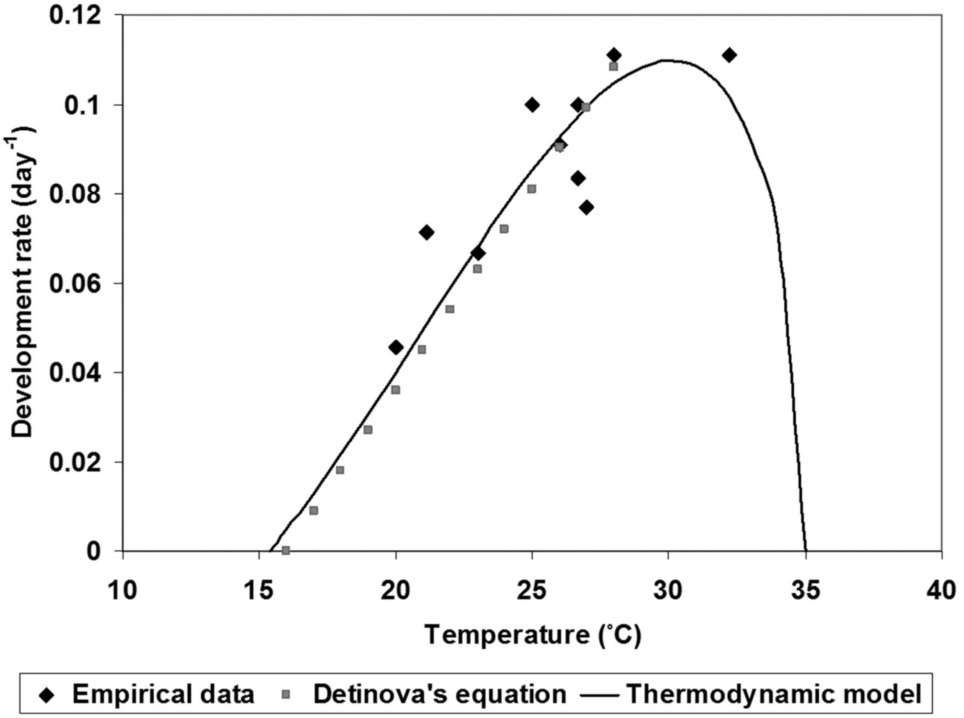

Fig. S1. Relationship between temperature and the development rate of *Plasmodium falciparum*. The function as proposed by Brière et al. (1) is fitted to a set of empirical data (see *Methods* for references) and the well-established Detinova equation (2) over a defined temperature range. $R^2 = 0.924$.

1. Brière JF, Pracros P, Le Roux AY, Pierre JS (1999) A novel rate model of temperature-dependent development for anthropods. *Environ Entomol* 28:22–29.
2. Detinova TS (1962) in *Age-grouping methods in Diptera of medical importance* (World Health Organization, Geneva).

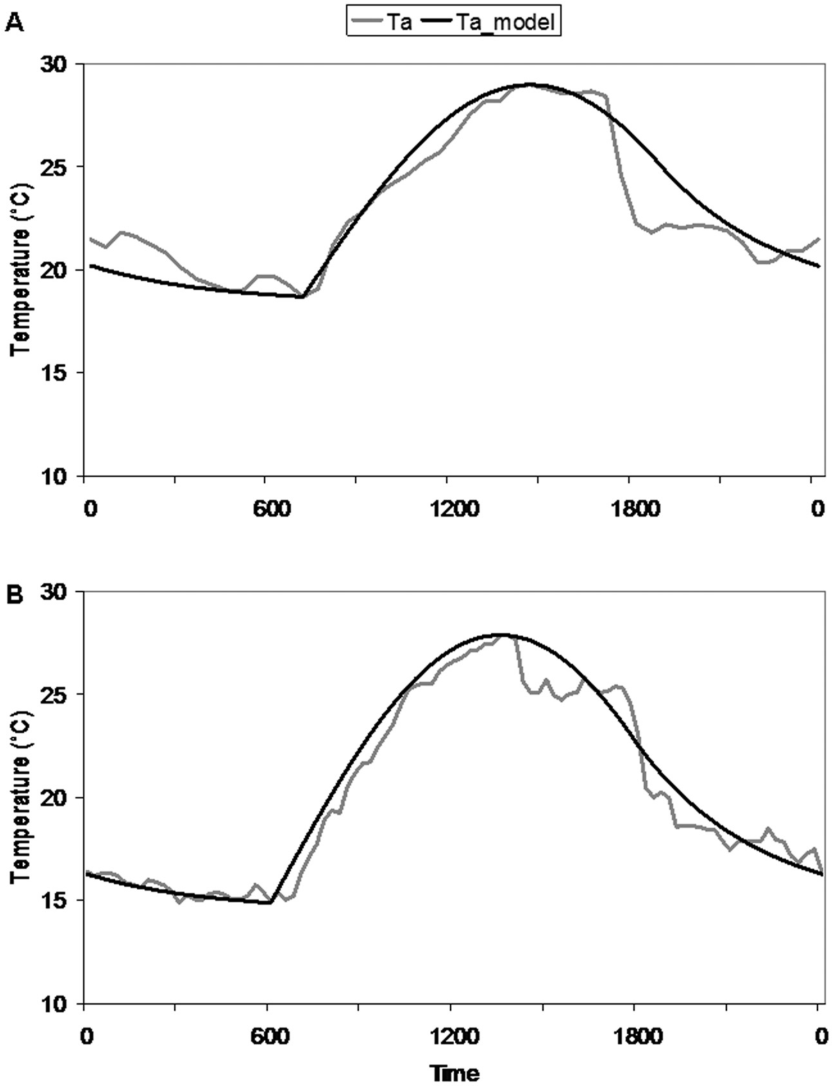

Fig. S2. Measured and modeled air temperature (T_a) at (*A*) a lowland site and (*B*) a highland site in western Kenya (see *Methods* for more information).

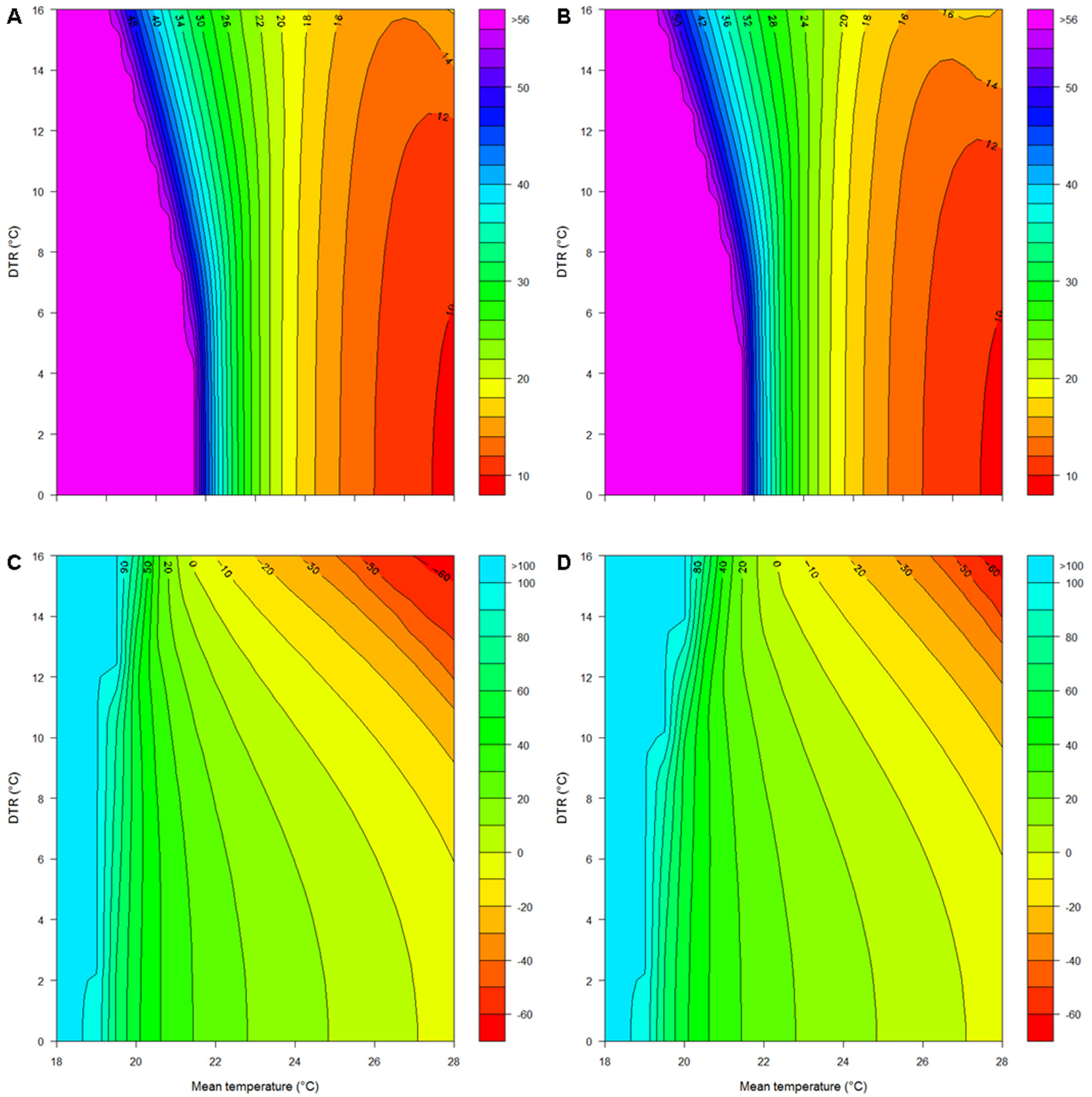

Fig. S3. (*A* and *B*) Duration of the extrinsic incubation period (days, right hand bar) of *Plasmodium falciparum* parasites across a range of mean temperatures (12–28°C) and diurnal temperature ranges (0–16°C). (*C* and *D*) The relative change in R_0 (%, right hand bar) across a range of mean temperatures (18–28°C) and diurnal temperature ranges (0–16°C), comparing R_0 estimates derived from EIP estimates shown in (*A*) and (*B*), respectively, with EIP estimates predicted by Detinova's equation (1). Models are run with a 10:14 (*A* and *C*) or 14:10 (*B* and *D*) day:night cycle.

1. Detinova TS (1962) in *Age-grouping methods in Diptera of medical importance* (World Health Organization, Geneva).

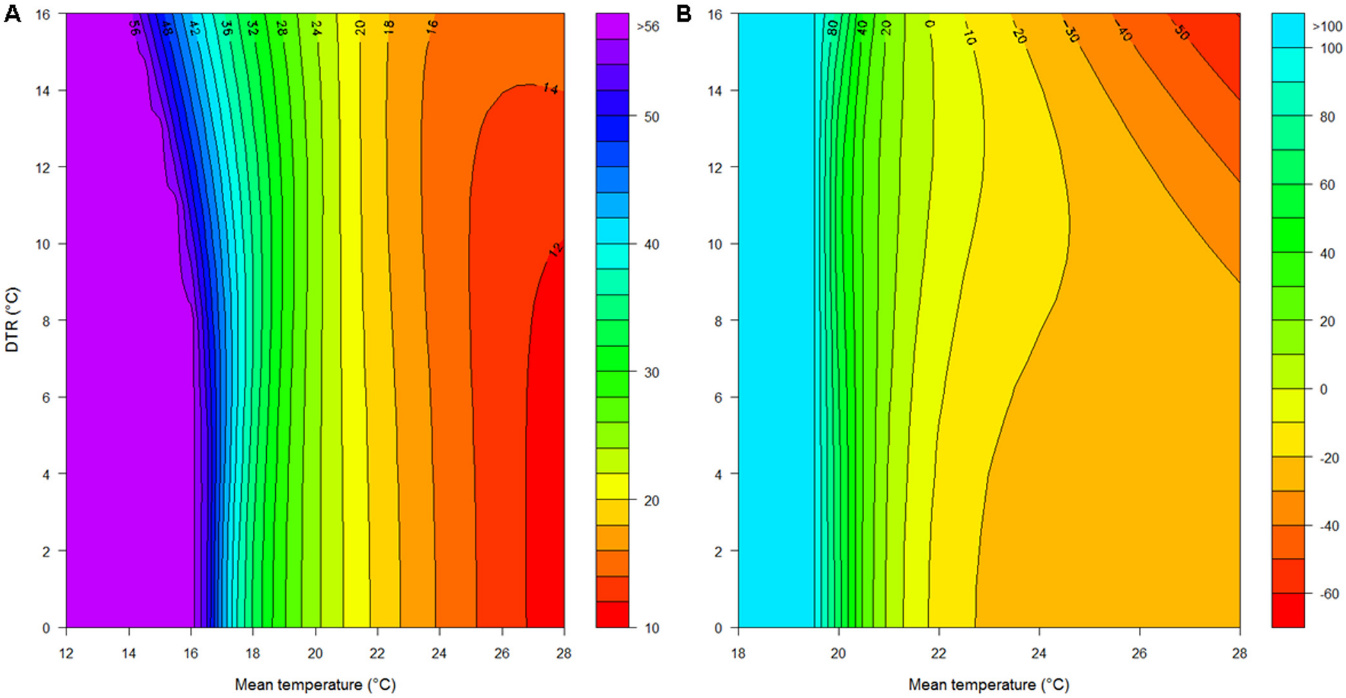

Fig. S4. (*A*) Duration of the extrinsic incubation period (days, right hand bar) of *Plasmodium falciparum* parasites across a range of mean temperatures (12–28°C) and diurnal temperature ranges (0–16°C) as estimated with the thermal dynamic model proposed by Ikemoto (1). This model assumes lower minimum and higher maximum threshold temperatures for parasite development. (*B*) The relative change in R_0 (%, right hand bar) across a range of mean temperatures (18–28°C) and diurnal temperature ranges (0–16°C), comparing R_0 estimates derived from EIP estimates shown in (A) with EIP estimates predicted by Detinova's equation (2). Models are run with 12:12 day:night cycle.

1. Ikemoto T (2008) Tropical malaria does not mean hot environments. *J Med Entomol* 45:963–969.
2. Detinova TS (1962) in *Age-grouping methods in Diptera of medical importance* (World Health Organization, Geneva).