Supplementary Material

```sh
#!/bin/sh
#lst.diurnal.stefan-boltzman.sh, v.1.0, main body of the code

while  [ $sunrise -le $sunset]

  do

  echo "Calculating effective solar irradiance" $i

i0=`expr $i - 1`

r.sun --o elevation=elev aspect=aspect slope=slope albedo=albedo
glob_rad=solar_irradiance.$i0 day="$day" time="$i0" coeff_bh=beam_attenuation
linke_value="$linke"

r.sun --o elevation=elev aspect=aspect slope=slope albedo=albedo
glob_rad=solar_irradiance.$i day="$day" time="$i" coeff_bh=beam_attenuation
linke_value="$linke"

r.mapcalc --o "Qs.$i = $a1 * solar_irradiance.$i + $a2 * (solar_irradiance.$i -
solar_irradiance.$i0)/1.0 + $a3"

r.mapcalc --o "Is.$i = solar_irradiance.$i - Qs.$i"

   i=`expr $i + 1`

 done
```