

```
1  ! modules and global parameters
2  include 'mod kind types.f90'
3  include 'mod constants and parameters.f90'
4  include 'mod linear regression.f90'
5  include 'mod surface fit.f90'
6  include 'mod timer.f90'
7  include 'mod quality measures.f90'
8  include 'mod Helios output.f90'
9  include 'mod Helios.f90'
10 include 'mod thermodynamics.f90'
11
12 program main
13
14 use cpu_timer_class
15 use clock_timer_class
16 use HELIOS_data
17 implicit none
18
19 type ( HELIOS )           :: HeB_emmissivity ! instantiate cla
20 type ( HELIOS )           :: LyB_emmissivity ! instantiate cla
21 type ( HELIOS )           :: HeB_opacity      ! instantiate cla
22 type ( HELIOS )           :: LyB_opacity      ! instantiate cla
23
24 type ( cpu_timer )        :: cpu_self         ! instantiate CPU
25 type ( clock_timer )      :: clock_self       ! instantiate clo
26 real ( dp )               :: cpu_time        = zero
27 real ( dp )               :: clock_time      = zero
28
29 character ( len = 30 )    :: timestamp
30
31 ! start timers
32 call cpu_self % cpu_timer_grab ( )
33 call clock_self % clock_start_timer ( )
34
35 call load_data ( HeB_emmissivity, LyB_emmissivity, HeB_opacity, LyB_
36
37 ! stop the CPU timer
```

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38  cpu_time    = cpu_self    % cpu_timer_stop ( )
39  clock_time  = clock_self % clock_elapsed_time ( )
40
41  call how_long_sub ( io_unit_default, cpu_time,    'elapsed CPU time (
42  call how_long_sub ( io_unit_default, clock_time, 'elapsed clock time
43
44  write ( *, * ) timestamp ( )
45
46  end program main
47
48  !  assortment of utility routines
49  include 'sub_routines.f90'
```