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// This file is available in electronic form at http://www.psa.es/sdg/sunpos.htm

#ifndef __SUNPOS_H
#define __SUNPOS_H

// Declaration of some constants
#define pi 3.14159265358979323846
#define twopi (2*pi)
#define rad (pi/180)
#define dEarthMeanRadius 6371.01 // In km
#define dAstronomicalUnit 149597890 // In km

struct cTime
{
    int iYear;
    int iMonth;
    int iDay;
    double dHours;
    double dMinutes;
    double dSeconds;
};

struct cLocation
{
    double dLongitude;
    double dLatitude;
};

struct cSunCoordinates
{
    double dZenithAngle;
    double dAzimuth;
};

void sunpos(cTime udtTime, cLocation udtLocation, cSunCoordinates *udtSunCoordinates);

#endif
```