Subject: Puzzle with floating point underflow
Posted by Martin Schultz on Thu, 23 Aug 2001 07:30:35 GMT
View Forum Message <> Reply to Message

Hi all,

How can a float number be something e-42 if the system says it can only represent numbers down to 1.e-38 in a float????????

```
test= 8.1047657d-42
IDL> tmp=float(test)
% Program caused arithmetic error: Floating underflow
% Detected at  MGS_RGRID::REGRID  203 /pf/m/m218003/home/IDL/lib/mgs_newobjects
  /mgs_rgrid__define.pro
IDL> help,tmp
TMP             FLOAT     =   8.10511e-42

IDL> help,machar(),/stru
** Structure MACHAR, 13 tags, length=52:
   IBETA           LONG                2
   IT              LONG               24
   IRND            LONG                5
   NGRD            LONG                0
   MACHEP          LONG              -23
   NEGEP           LONG              -24
   IEXP            LONG                8
   MINEXP          LONG             -126
   MAXEXP          LONG              128
   EPS             FLOAT       1.19209e-07
   EPSNEG          FLOAT       5.96046e-08
   XMIN            FLOAT       1.17549e-38    <<<<<<<<<<<
   XMAX            FLOAT       3.40282e+38
```

(For those, who haven't figured this out from the Machar output: I am running IDL5.3 on a Linux system (kernel 2.2.14))

Not a real problem because underflows are considered harmless, but I am curious about this, anyhow.

Cheers,

Martin

--

[[[[[[[[[[
[[Dr. Martin Schultz   Max-Planck-Institut fuer Meteorologie   [[
[[Bundesstr. 55, 20146 Hamburg   [[
[[phone: +49 40 41173-308   [[
[[fax: +49 40 41173-298   [[
[[martin.schultz@dkrz.de   [[
[[[[[[[[[[