During MAP we used several sonic types. The sonic types used at the different sites (mn, ro, ag) are listed in the log files which can be found where the raw data files are. The sonic raw data were sampled with a home-made Labview program and stored in binary formats. For most of the sonics we applied a so-called matrix calibration which was applied to the sonic raw data (u, v, w) to which no manufacturer calibration has been applied if available. The scheme below gives you an overview on the processing chain.

I give you the subroutines from which you can find out the binary format.

Monte Nuovo (mn)

2 Campbell CSAT3

No manufacturer calibration available. The records were streamed to the files with the binary coding from the manufacturer. In MAP Riviera we omitted the ID bytes (noid=1) and the first record had to be ignored (offset=0). The uvwt decoding of the 10 byte records can be found out from the subroutine or from CSAT3 manual.

```
uvwt=AML_SON_read_csat3('c:\temp\MN_N3_1999_229_233000.raw', noid=1, offset=1)
```

3 GILL R2

These sonics were operated in the transit count mode which means you have to calculate uvwt from the transit counts. The default pathlength is 0.149m. We used individually measured pathlengths. In case I find them, I send them and you can set the pathlengths with the keyword. The number of analog inputs are provided with the anz_ai keyword. In case of mn there were no analog inputs with the Gill R2. After you scaled the transit counts to uvwt you can apply the manufacturer calibration to uvw.

```
uvwt=AML_SON_read_r2tc('c:\temp\MN_N4_1999_229_233000.raw', anz_ai=anz_ai,
pathlength=pathlength)
```

1 GILL HS

The routine returns uvwt in probably uncalibrated mode I'll have to check that. A Krypton hygrometer was connected to the AD converter of the HS. Here I also have to find the calibration.

```
uvwtai=AML_SON_read_hs('c:\temp\MN_N8_1999_229_233000.raw',1)
```

Rored (ro)

1 Gill R2

Same as above, but a Krypton hygrometer was connected as an analog input to the sonic.

```
uvwtai=AML_SON_read_r2tc('c:\temp\RO_N2_1999_260_000000.raw',anz_ai=1)
```

1 Metek USA1

Is straightforward, it contains ASCII records. You can read it with

```
uvwt=AML_SON_read_metek('c:\temp\RO_N1_1999_260_233000.raw',format='a')
```

Alpe Gagèrn (ag)

2 Gill R2

Both sonics had no analog inputs an can be read with

```
x=AML_SON_read_r2tc('c:\temp\AG_N4_1999_245_000000.raw')
```

Applying the calibration from the manufacturer (Gill calibration) for the Gill R2. `AML_SON_gillcal` applies the calibration. AML_SON_gillfile.pro reads the calibration files and AML_MET_azi calculates the azimuth in the orientation of the Gill coordinate system (left hand).

For the Gill HS I have to find out in which mode it was operated, it could well be, that it was operated in the calibrated mode so you can use uwv like that. No calibration needed for the CSAT3 and USA1.

Description of AML_SON_read