OTFCAL

A **GILDAS** working group software

Document probably older than you think

Contents

1 CAL Language Internal Help

We give here a *fac simile* of the internal `HELP` file for `OTFCAL`. In case of trouble, the user should refer directly to the internal help which is always accurately kept up to date.

1.1 Language

```
BAD_CHANNEL     : Update the Bad Channel List.
CALIBRATE Ns    : Reduce calibration scan Ns
COMPUTE B P     : Compute a spectrum from the current signal and gains.
COMPALL B       : Computes all spectra and write to output.
DIRECTORY [name]: Define the directory where the raw data are.
FLY Isub B P    : Reduce a OTF subscan for backend B, part P
GAINS B         : Plot the current gain values for backend B
SAVE Name       : Saves the current parameters.
SUPPLY          : Define a calibration parameter.
SHOW            : Displays the current parameters.
SIGNAL B        : Plot the current signal array for backend B
SCAN Ns         : Start processing a new scan.
SUBSCAN [Isub]  : Read a subscan.
```

1.2 BAD_CHANNEL

```
[CAL\]BAD_CHANNEL Backend [NONE] [List]
```

Update the Bad Channel List for the specified backend number.

1. keyword NONE as second argument will empty the list

2. n1 n2 ... to insert channels n1, n2, ... in the list

3. -n1 -n2 ... to remove channels n1, n2, ... from the list

With only one argument, BAD_CHANNEL displays the current list in the following form

I-BAD, User : n1 n2 n3

I-BAD, Software : k1 k2 k3 where the n's are the channels explicitely declared bad by the user, and the k's those found bad by the software. Note that channel numbers are original numbers, ignoring any splitting of backend.

1.3 CALIBRATE

```
[CAL\]CALIBRATE Scan [METHOD]
```

CALIBRATE use the specified Scan to compute a new calibration for all backends found in the scan. Method is used to specified which type of

processing to use for atmospheric parameters, and can be COLD, AUTO, MANUAL or TREC. The required atmospheric parameters must be specified using SUPPLY command. Default method can be specified using SUPPLY command. The TCAL is computed for each backend and each part of backend, using the standard chopper-wheel formula.

The new gain array and TCALs will be used in subsequent COMPUTE commands.

1.4 COMPUTE

COMPUTE Backend [Part]

For LINE data, COMPUTE divides the current signal array by the current gain array and multiply by the correct calibration factor TCAL to obtain a spectrum. For CONTINUUM data, COMPUTE process the specified part of the continuum backend to produce a drift. The drift is calibrated if a Continuum calibration is available.

Backend is the backend to process, and can be a mnemonic (100KHZ, 1MHZ, AUTO, AOS) or a number (2, 3, 4, 5 for the backends mentionned above). Part is the backend part to process; the default is the first part.

The current LAS observation in R is first copied to T. Then the specified part of backend is processed to create a new R observation.

The computed observation may be further be analysed by standard LAS commands However, it has no observation number. Hence, command WRITE must be used with an argument to specifiy an observation number in the output file.

1.5 COMPALL

[CAL\]COMPALL Backend

This COMPUTEs all spectra for a given backend and writes these on the output file. Did not yet test continuum.

1.6 DIRECTORY

[CAL\]DIRECTORY name

Define the directory where the raw data are. Default is your current working directory. Use "*" as argument to process files at Pico-Veleta. This will take into account the specific organisation of the tree directories.

1.7 FLY

[CAL\]FLY Isub Backend [Max_no_of_dumps] [/RECORDS] [/INTER mode] [/PHASE wp1 wp2 ... wpn]

Reduces a complete On-The-Fly subscan Isub for a whole backend (all parts) and writes these to the output file.

Max_no_of_dumps is initially 500 and should be increased for sub- scans with more dumps.

/RECORDS 1 to 20 21 to 91 by 5 ... (like FOR loops) Will reduce only these "dumps"

/INTER mode If mode is total the reference 1 and 2 (see SUBSCAN command) are interpolated in total power. If mode is time, a linear interpolation is done between the two references. If mode is not given only the first reference is taken.

/PHASE wp1 wp2 ... wpn n phases with weights wp1, wp2 ... wpn are reduced. E.g. use wp1=1 and wp2=-1 for frequency switch OTF-maps.

1.8 GAINS

[CAL\]GAINS Backend

Plot the gain values for the specified backend. Backend can be a mnemonic (100KHZ, 1MHZ, AUTO, AOS) or a number (2, 3, 4, 5 for those specified above).

1.9 SAVE

[CAL\]SAVE name

SAVE creates a procedure file of name "name.pro", containing all the current parameters of the program. This file may be executed at any time using the @ command: just type "@ name" after the LAS> prompt, pass "@ name" as a parameter when calling CAL. This file is composed of standard LAS, ANALYSE and CAL commands.

1.10 SCAN

[CAL\]SCAN [N] [mode]

Start processing scan N. If mode is RESET or not specified, the signal array is initialised, if mode is NORESET the signal array is not initialised. The current subscan number is reset, and subscans may then be read in by the SUBSCAN /SIGNAL command. If N is not specified, the current value is increased by 1.

1.11 SHOW

[CAL\]SHOW [Arg]

Displays the specified CAL parameter. If Arg is ALL, all CAL parameters will be listed. Note that you should specify the language because this command is ambiguous with the LAS\SHOW command.

1.12 SIGNAL

[CAL\]SIGNAL Backend

Plot the current Signal array (uncalibrated). All parts are plotted. Backend can be a mnemonic or a number (see GAINS).

1.13 SUBSCAN

[CAL\]SUBSCAN [Isub] [/SIGNAL w1 w2 [..]] [/RECORDS] [/OFF n]

Read the subscan number Isub of the current scan. By default, Isub is the current subscan number incremented by one. The program will automatically process all line backends connected at the time of observations.

For LINE data, the /SIGNAL option is used to indicate how to increment the signal array by the weighted sum of the available phases in this subscan, with weights w1, w2, ...

For CONTINUUM data, the /SIGNAL option is ignored.

With the /RECORDS 1 to 20 21 to 91 by 5 ... (like FOR loops) and the /OFF n option, these "DUMPS" are added to the reference n, where n = 1 or 2.

1.14 SUPPLY

[CAL\]SUPPLY something [value1 [value2 [...]]] [/RECEIVER i]

This is a command to introduce calibration parameters as well as obser-

vation parameters that were not included in the header (if any). The /RECEIVER option specifies the receiver for which the parameter is valid.

```
RAWDATA YES/NO [[ALL] [/RECEIVER i]]

     YES : Read calibration parameters from raw-data header
     NO  : Do not read supply parameters from raw-data header
     ALL : For all receivers  OR  /RECEIVER i : Only for receiver i

AMBIENT temp pressure   : ambient temp.(K) and pressure (mbar)
ATMOSPHERE sig img      : atmospheric temperature (absorbing
                          layers), in both sidebands
CAL     AUTO    COLD    : Indicate which method to use for
        MANUAL  TREC      calibration.
CHOPPER hot cold        : chopper temperature hot (or ambient)
                          and cold (liquid N2)
CONTINUUM  Broad        : Specify whether the total power or
           Width          pseudo-continuum is used for pointing.
EFFICIENCY beam forward : antenna beam efficiency,
                          and forward (sky) efficiency
GAIN    gain            : Gain ratio Image/Signal band
LINE    Name            : enters a name for the observed line (useful
                          for bookeeping purposes).
TAU     sig img         : opt.depth in Signal and Image Bands
TREC    Treceiver       : Specify receiver temperature for TREC method.
```