

```

Frequency L2                > 10 < > 32 < > 224 <
Tolerance for Jump Detection > 100 < Microseconds
Sampling Interval           > 0 < Seconds
Offset to Full Minute       > 0 < Seconds
Default Wavelength Factor for L2 > 1 < 1 or 2
Highest Legal Record Type (0=no preamble test)> 0 < 0 or at least 21

Take First Four Characters for RINEX Filename > YES < (YES or NO)
Use Record Types 2/6/12, 1/10/11 > YES < (YES or NO)
Use Bit 3 of Sync Flag for Test > YES < (YES or NO)

Antenna Height:
Slant Height: Radial Offset > 0.000 < m 0.233 Notches
Vertical Offset to RINEX reference > 0.000 < m 0.063 Top GP
SST:

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2.5.1.1.2	Trimble Rawdata Files to RINEX Files: Input 2	HELP
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Signal to Noise Ratio: Frequency L1 / Frequency L2:
The minimum/threshold/maximum values are used to compute the s/n stored into the RINEX files from the values found in the raw data files according to the scheme:

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minimum value (and smaller) --> RINEX s/n value: 1
threshold --> RINEX s/n value: 5
maximum value (and larger) --> RINEX s/n value: 9

(linear functions between 1 and 5 or 5 and 9, respectively, rounded to the nearest integer)

The threshold value is the signal strength above which there is no doubt that the signal was strong enough to generate a good observation. It is translated into a 5 in the RINEX file.

The values have to be adjusted according to the actual receiver (and maybe antenna) type. If you are unsure what values to use, run the converter program and observe the minimum and maximum values found in the raw data files that are printed in the program listing, modify the values in the data panel accordingly and rerun the program.

Tolerance for Jump Detection:
The converter uses this value to decide if and when the receiver shifted the time scale by one millisecond or if there is a problem (odd jump) in the receiver clock offset. The converter may also look for event flags in the raw data to detect millisecond shifts (subrecord type 1 of record type 19).
RECOMMENDED VALUE: 100 Microseconds

Sampling Interval:
Used to decimate data. A sampling rate of 30 seconds will select data at epochs 00 and 30 seconds after each full minute.
Sampling interval 0 will convert all observations found.
RECOMMENDED VALUE: 30 Seconds

Offset to Full Minute:
Used to shift the sampling epoch with respect to the full minute.
RECOMMENDED VALUE: 0 Seconds

Default Wavelength Factor for L2:
Used to flag squared phase data (value: 2).
RECOMMENDED VALUE: 1 (for modern geodetic receivers)

Highest Legal Record Type (0=no preamble test):
The converter decodes the header at the beginning of each raw data record. It will only decode the remaining record for known record types and not issue error messages for unknown record types. If you enter a value other than zero the program will try to skip the current and all subsequent records until it finds a valid preamble with a valid record type. This may be useful to re-synchronize the data input for corrupted raw data files.
RECOMMENDED VALUE: 21 (unless future firmware versions will know additional record types)

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B. Option Panels and Help Panels

<p>Take First Four Characters for RINEX Filename: If YES the converter will propose RINEX file names using the first four characters of the site name found in the raw data file. RECOMMENDED VALUE: YES</p> <p>Use Record Types 2/6/12, 1/10/11: If YES the converter collects additional site information from above record types. RECOMMENDED VALUE: YES</p> <p>Use Bit 3 of Sync Flag for Test: If YES bit 3 of flag 1 is tested for valid lock point. RECOMMENDED VALUE: YES</p> <p>Antenna Height: Slant Height: Radial Offset: Vertical Offset to RINEX reference:</p> <p style="padding-left: 40px;">If not zero the antenna height is interpreted as slant height and reduced to the vertical using the radial offset. If not zero the vertical offset is used to reduce the vertical height to the RINEX Antenna Reference Point.</p> <p style="padding-left: 40px;">RECOMMENDED VALUE: Depend on the actual antenna type and the measurement procedure in the field but see also {X:\GEN\ANTENNA.GRA} and ftp://igsb.jpl.nasa.gov/igsb/station/general/antenna.gra</p>	WG
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2.5.1.2	Trimble Navigation Files to RINEX Files (Main Data Panel)	
<p>CAMPAIGN > < (blank for selection list)</p> <p>Name of File Containing List of Rawdata Files FILELIST > < (blank: List has to be created)</p> <p>Device/Path to Rawdata Files RAWDATA > X:\EUROCLUS\RAW\ <</p> <p>Extension of Rawdata Files RAWEXT > EPH <</p>		

2.5.1.2	Trimble Navigation Files to RINEX Files (Main Data Panel)	HELP
<p>General remarks:</p> <p>With this and the following panels you select the processing options for the program TRRINEXN. The main purpose of this program is the creation of RINEX navigation message files from Trimble raw data files.</p> <p>Before you run this program you should run TRRINEX0 to create the special ephemeris file containing just the ephemeris records from the rawdata file.</p> <p>Name of File Containing List of Rawdata Files</p> <p>FILELIST: Full name (i.e. including path) of a file containing a list of the raw data file names (body of filenames plus extensions, no paths!). The list has to be left-justified, one filename per line. If the input field is left blank, the file list will be created interactively. RECOMMENDED VALUE: blank</p> <p>Device/Path to Rawdata Files</p>		

<p>RAWDATA: Path to the raw data files. EXAMPLE: D:\TESTV34\RAW\</p> <p>Extension of Rawdata Files</p> <p>RAWEXT: Extension of the raw data filenames. Used to generate a selection list for the interactive generation of the file list. RECOMMENDED VALUE: RT3 (RT3 is the extension of the files containing binary ephemeris records created by TRRINEXO)</p>	WG
---	----

2.5.1.2.1	Trimble Navigation Files to RINEX Files: Input 1
<p>Comments: > TRIMBLE TO RINEX < > < > <</p> <p>Agency Running Program : > ANONYMOUS <</p> <p>Automatic Filename Creation : > NO < (YES or NO)</p>	

2.5.1.2.1	Trimble Navigation Files to RINEX Files: Input 1	HELP
<p>Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file.</p> <p>Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.</p> <p>Automatic Filename Creation: If YES the converter will propose RINEX file names using the first four characters of the rawdata filename.</p>		
		WG

2.5.2.1	Minimac Rawdata Files to RINEX Files (Main Data Panel)
<p>CAMPAIGN > < (blank for selection list)</p> <p>Name of File Containing List of Rawdata Files FILELIST > < (blank: List has to be created)</p> <p>Device/Path to Rawdata Files RAWDATA > X:\EUROCLUS\RAW\ <</p> <p>First Character of Rawdata Files FIRST CHAR > R <</p> <p>Satellite Clock File (Previously Created by Pgm. MCRINEXN) : SATCLOCK > MCRINEXO.CLK <</p>	

2.5.2.1.1	Minimac Rawdata Files to RINEX Files: Input 1
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B. Option Panels and Help Panels

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Comments:
  >
  >
  >
Agency Running Program > ANONYMOUS <
Default Antenna Type > MACROMETER X-DIPOLE <
  
```

2.5.2.1.2	Minimac Rawdata Files to RINEX Files: Input 2		
Signal to Noise Ratio	Minimum	Threshold	Maximum
Frequency L1	> 1 <	> 10 <	> 30 <
Frequency L2	> 1 <	> 10 <	> 55 <
Current Year	>	<	(blank: Expanded Format)
GPS minus UTC	> 5 <		Seconds
Sampling Interval	> 30 <		Seconds
Offset to Full Minute	> 0 <		Seconds
Take First Four Characters for RINEX Filename	> YES <		(YES or NO)
Use Station Name Abbreviation Table		> NO <	(YES or NO)

2.5.2.2	Minimac Navigation Files to RINEX Files (Main Data Panel)		
CAMPAIGN	>	<	(blank for selection list)
Name of File Containing List of Navigation Files			
FILELIST	>	<	(blank: list has to be created)
Device/Path to Navigation Files			
RAWDATA	> X:\EUROCLUS\RAW\		<
First Character of Navigation Filenames			
FIRST CHAR	> B <		
Satellite Clock File			
SATCLOCK	> MCRINEX0.CLK		< (blank: do not create)

2.5.2.2.1	Minimac Navigation Files to RINEX Files: Input 1		
Comments:			
>			<
>			<
>			<
Agency Running Program :		> ANONYMOUS	<
Automatic Filename Creation :		> NO <	(YES or NO)

2.5.3.1	WM-102 PoPS SM-Files to RINEX Files (Main Data Panel)		
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CAMPAIGN	>	<	(blank for selection list)
Name of File Containing List of Site Measurement Files:			
FILELIST	>	SMLIST	<
Coordinate Filename:			
COORD	>	SITCOORD	<
Device/Path to PoPS Files:			
RAWDATA	>	X:\EUROCLUS\RAW\	<

2.5.3.1.1	WM-102 PoPS SM-Files to RINEX Files: Input 1		
Comments:			
>			<
>			<
>			<
Agency Running Program	>	ANONYMOUS	<
Default Antenna Type	>	WM102	<

2.5.3.1.2	WM-102 PoPS SM-Files to RINEX Files: Input 2		
Signal to Noise Ratio	Minimum	Threshold	Maximum
Frequency L1	> 20 <	> 40 <	> 60 <
Frequency L2	> 20 <	> 40 <	> 60 <
Sampling Interval		> 30 <	Seconds
Offset to Full Minute		> 0 <	Seconds
Antenna Height Correction		> 0 <	mm
Take First Four Characters for RINEX Filename	>	YES <	(YES or NO)
Write Extended RINEX Header	>	NO <	(YES or NO)

2.5.3.2	WM-102 PoPS SATNAV-Files to RINEX Files (Main Data Panel)		
CAMPAIGN	>	<	(blank for selection list)
Device/Path to SATNAV-Files			
RAWDATA	>	X:\EUROCLUS\RAW\	<

2.5.3.2.1	WM-102 SATNAV-Files to RINEX Files: Input 1		
Comments:			
>			<
>			<
>			<
Agency Running Program :	>	ANONYMOUS	<
Automatic Filename Creation :	>	NO <	(YES or NO)

2.5.4.1	Ashtech Rawdata Files to RINEX Files (Main Data Panel)		
<p>CAMPAIGN > < (blank for selection list)</p> <p>Rawdata Observation File:</p> <p>FILELIST > < (blank: create list)</p> <p>PATH > X:\EUROCLUS\RAW\ <</p> <p>FIRST CHARACTER > B <</p> <p>Output Files:</p> <p>LOG FILE > < (blank: don't create)</p> <p>SUMMARY FILE EXTENSION > SUM < (blank: don't create)</p>			

2.5.4.1	Ashtech Rawdata Files to RINEX Files (Main Data Panel)	HELP
<p>General remarks:</p> <p>With this and the following panels you select the processing options for the program ASRINEX0. The main purpose of this program is the creation of RINEX observation files from Ashtech raw data files.</p> <p>The RINEX converter programs also run independently from the Bernese GPS Software. They use as primary options file a file called xxRINEXt.OPT (xx: 2-character program code, AS for Ashtech, t: RINEX file type, O=observation, N=navigation) which has to exist in the current or default directory.</p> <p>More informations about the RINEX converter programs can be found in the file PCRINEX.TXT which is distributed together with the converters. The most recent converters (at least the PC executables) can be downloaded from our anonymous ftp account (ubeclu.unibe.ch, cd aiub\$ftp, cd pcrinex).</p> <p>Rawdata Observation File:</p> <p>FILELIST: Full name (i.e. including path) of a file containing a list of the raw data file names (body of filenames plus extensions, no paths!). The list has to be left-justified, one filename per line. If the input field is left blank, the file list will be created interactively. RECOMMENDED VALUE: blank</p> <p>PATH: Path to the raw data files. EXAMPLE: D:\TESTV34\RAW\</p> <p>FIRST CHARACTER: First character of the raw data filenames. Used to generate a selection a list for the interactive generation of the file list. RECOMMENDED VALUE: B</p> <p>Output Files:</p> <p>LOG FILE: Full filename (path, body, extension) of a file that will contain all major components of the binary rawdata file written in ASCII. This file becomes very large and is meant to be used for debugging purposes only. RECOMMENDED VALUE: blank</p> <p>SUMMARY FILE EXTENSION: The RINEX converter program may create a summary file, the body of the filename is identical to the RINEX observation filename. It's extension may be selected here. An extension of the form %yS will be translated into yyS where yy is the two-digit year. To leave it blank will prevent the program from creating summary files. RECOMMENDED VALUE: %yS or blank</p> <p style="text-align: right;">WG</p>		

2.5.4.1.1	Ashtech Rawdata Files to RINEX Files: Input 1		
Comments:	>		<
	>		<
	>		<
Agency Running Program	>	ANONYMOUS	<
Default Receiver Type:	Single Freq.	>	ASHTECH L-XII <
	Dual Freq.	>	ASHTECH LD-XII <
	P-Code Receiver	>	ASHTECH Z-XII3 <
Default Antenna Type :	Single Freq.	>	MARINE/RANGE <
	Dual Freq.	>	GEODETIC L1/L2 L <
	P-Code Receiver	>	GEODETIC L1/L2 P <
Include Doppler Counts as Observations	>	NO <	(NO, L1, L1&L2)
Include S/N Counts as "Observations"	>	NO <	(NO, L1, L1&L2)

2.5.4.1.1	Ashtech Rawdata Files to RINEX Files: Input 1	HELP
<p>Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file.</p> <p>Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.</p> <p>Default Receiver Type Single Frequency: Dual Frequency: P-Code Receiver:</p> <p>Default Antenna Type Single Frequency: Dual Frequency: P-Code Receiver:</p> <p>Names for the receiver and antenna types that will be proposed to the operator during execution of the RINEX converter program (provided the program runs in interactive mode, see next help panel). Depending on the type of the receiver (single or dual frequency receiver the converter program assumes to have detected) the program will propose the names in the "Single Frequency", "Dual Frequency" or "P-Code Receiver" input field. (The latter is most certainly the one that will be used for geodetic receivers).</p> <p>The final values will be included into the RINEX headers. They also have to agree with the values in the antenna phase center file (see e.g. {X:\GEN\PHAS_IGS.01}). RECOMMENDED VALUE: Use the values proposed by the International GPS Service for Geodynamics (see {X:\GEN\RCVR_ANT.TAB} and ftp://igsb.jpl.nasa.gov/igsb/station/general/rcvr_ant.tab)</p> <p>Include Doppler Counts as Observations: If L1 or L1&L2 is specified the doppler counts found in the raw data files are stored as D1 or D1 and D2 observations into the RINEX files. RECOMMENDED VALUE: NO</p> <p>Include S/N Counts as "Observations": If L1 or L1&L2 is specified the raw signal strength values found in the raw data files are stored as S1 or S1 and S2 observations into the RINEX files. RECOMMENDED VALUE: NO</p>		
		WG

B. Option Panels and Help Panels

2.5.4.1.2	Ashtech Rawdata Files to RINEX Files: Input 2				
Signal Strength	Minimum	Threshold	Maximum	Squared	P-Code
Frequency L1	> 1 <	> 30 <	> 120 <	1:40:140	1:30:120
Frequency L2	> 1 <	> 15 <	> 60 <	1:10: 40	1:15: 60
Tolerance for Jump Detection			> 50 <	Microseconds	
Sampling Interval			> 30 <	Seconds	
Offset to Full Minute			> 0 <	Seconds	
Minimum Validity Code			> 21 <	(22,23,24)	
Take First Four Characters for RINEX Filename			> YES <	(YES or NO)	
Apply Smoothing Corrections to Pseudoranges			> NO <	(YES or NO)	
Antenna Height:					
Slant Height: Radial Offset			> 0.0 <	m	(0.110)
Vertical Offset to RINEX reference			> 0.0 <	m	(0.064)

2.5.4.1.2	Ashtech Rawdata Files to RINEX Files: Input 2	HELP
<p>Signal Strength: Frequency L1 / Frequency L2: The minimum/threshold/maximum values are used to compute the s/n stored into the RINEX files from the values found in the raw data files according to the scheme:</p> <pre> minimum value (and smaller) --> RINEX s/n value: 1 threshold --> RINEX s/n value: 5 maximum value (and larger) --> RINEX s/n value: 9 </pre> <p>(linear functions between 1 and 5 or 5 and 9, respectively, rounded to the nearest integer)</p> <p>The threshold value is the signal strength above which there is no doubt that the signal was strong enough to generate a good observation. It is translated into a 5 in the RINEX file.</p> <p>The values have to be adjusted according to the actual receiver (and maybe antenna) type. If you are unsure what values to use, run the converter program and observe the minimum and maximum values found in the raw data files that are printed in the program listing, modify the values in the data panel accordingly and rerun the program.</p> <p>Tolerance for Jump Detection: The converter uses this value to decide if and when the receiver shifted the time scale by one millisecond or if there is a problem (odd jump) in the receiver clock offset. The converter may also look for event flags in the raw data to detect millisecond shifts (subrecord type 1 of record type 19). RECOMMENDED VALUE: 100 Microseconds</p> <p>Sampling Interval: Used to decimate data. A sampling rate of 30 seconds will select data at epochs 00 and 30 seconds after each full minute. Sampling interval 0 will convert all observations found. RECOMMENDED VALUE: 30 Seconds</p> <p>Offset to Full Minute: Used to shift the sampling epoch with respect to the full minute. RECOMMENDED VALUE: 0 Seconds</p> <p>Minimum Validity Code: Might be used to exclude some observations where the receiver did not yet reach its maximum performance. Possible values: 21-24. The larger the number the more observations may be skipped. RECOMMENDED VALUE: 21</p> <p>Take First Four Characters for RINEX Filename: If YES the converter will propose RINEX file names using the first four characters of the site name found in the raw data file. RECOMMENDED VALUE: YES</p>		

Apply Smoothing Corrections to Pseudoranges:
 The raw data files (format version 3) contain a smoothing correction that can be applied to the raw pseudoranges.
 RECOMMENDED VALUE: NO

Antenna Height:
 Slant Height: Radial Offset:
 Vertical Offset to RINEX reference:

If not zero the antenna height is interpreted as slant height and reduced to the vertical using the radial offset.
 If not zero the vertical offset is used to reduce the vertical height to the RINEX Antenna Reference Point.

RECOMMENDED VALUE: Depend on the actual antenna type and the measurement procedure in the field but see also
 {X:\GEN\ANTENNA.GRA} and
 ftp://igsceb.jpl.nasa.gov/igsceb/station/general/antenna.gra

WG

2.5.4.2	Ashtech Navigation Files to RINEX Files (Main Data Panel)
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CAMPAIGN > < (blank for selection list)

Name of File Containing List of Rawdata Files
 FILELIST > < (blank: List has to be created)

Device/Path to Rawdata Files
 RAWDATA > X:\EUROCLUS\RAW <

First Character of Raw Ephemerides Filename
 FIRST CHAR > E <

2.5.4.2	Ashtech Navigation Files to RINEX Files (Main Data Panel)	HELP
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General remarks:

With this and the following panels you select the processing options for the program ASRINEXN. The main purpose of this program is the creation of RINEX navigation message files from Trimble raw data files.

Name of File Containing List of Rawdata Files

FILELIST:
 Full name (i.e. including path) of a file containing a list of the raw data file names (body of filenames plus extensions, no paths!).
 The list has to be left-justified, one filename per line.
 If the input field is left blank, the file list will be created interactively.
 RECOMMENDED VALUE: blank

Device/Path to Rawdata Files

RAWDATA:
 Path to the raw data files.
 EXAMPLE: D:\TESTV34\RAW\

First Character of Raw Ephemerides Filename

FIRST CHAR:
 Used to generate a selection list for the interactive generation of the file list.
 RECOMMENDED VALUE: E

WG

B. Option Panels and Help Panels

2.5.4.2.1	Ashtech Navigation Files to RINEX Files: Input 1	
Comments: > < > < > <		
Agency Running Program : > ANONYMOUS <		
Automatic Filename Creation : > NO < (YES or NO)		

2.5.4.2.1	Ashtech Navigation Files to RINEX Files: Input 1	HELP
Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file.		
Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.		
Automatic Filename Creation: If YES the converter will propose RINEX file names using the first four characters of the rawdata filename.		
		WG

2.5.5.1	Rogue Rawdata Files to RINEX Obs.Files (Main Data Panel)	
CAMPAIGN > < (blank for selection list)		
Rawdata Observation File:		
FILELIST > < (blank: create list)		
PATH > X:\EUROCLUS\RAW\ <		
FILE EXTENSION > * <		
Output Files:		
EPHEMERIS FILE EXTENSION > EPH < (blank: don't create)		
SUMMARY FILE EXTENSION > %S < (blank: don't create)		

2.5.5.1	Rogue Rawdata Files to RINEX Obs.Files (Main Data Panel)	HELP
General remarks: With this and the following panels you select the processing options for the program RGRINEX0. The main purpose of this program is the creation of RINEX observation files from Rogue raw data files. The RINEX converter programs also run independently from the Bernese GPS Software. They use as primary options file a file called xxRINEXt.OPT (xx: 2-character program code, RG for Rogue, t: RINEX file type, O=observation, N=navigation) which has to exist in the current or default directory. More informations about the RINEX converter programs can be found in the file PCRINEX.TXT which is distributed together with the converters. The most recent converters (at least the PC executables) can be downloaded from our anonymous ftp account (ubecclu.unibe.ch, cd aiub\$ftp, cd pcrinex).		
Rawdata Observation File:		

```

FILELIST:
  Full name (i.e. including path) of a file containing a list of the raw
  data file names (body of filenames plus extensions, no paths!).
  The list has to be left-justified, one filename per line.
  If the input field is left blank, the file list will be created
  interactively.
  Raw data files are files containing data in CONAN ASCII standard format.
  The CONAN binary files have first to be converted into ASCII using
  the JPL program DCR.
  RECOMMENDED VALUE: blank

PATH:
  Path to the raw data files.
  EXAMPLE: D:\TESTV34\RAW\

FILE EXTENSION:
  Extension of the raw data filenames. Used to generate a selection
  list for the interactive generation of the file list.
  Wildcards can be used, too.
  NO RECOMMENDED VALUE (depends on the raw data file naming scheme)

Output Files:

EPHEMERIS FILE EXTENSION:
  RGRINEX0 may copy all navigation message lines from the raw data
  file into a separate file (body of the filename identical to the
  raw data) that can later be accessed by the RGRINEXN program.
  These files HAVE TO BE GENERATED if RGRINEXN will be run.
  To leave the field blank will prevent the program from creating these
  files.
  RECOMMENDED VALUE: EPH

SUMMARY FILE EXTENSION:
  The RINEX converter program may create a summary file, the body of the
  filename is identical to the RINEX observation filename. It's extension
  may be selected here. An extension of the form %S will be translated
  into yyS where yy is the two-digit year.
  To leave it blank will prevent the program from creating summary files.
  RECOMMENDED VALUE: %S or blank
  
```

WG

2.5.5.1.1	Rogue Rawdata Files to RINEX Obs.Files: Input 1
<pre> Comments: > < > < > < Agency Running Program > ANONYMOUS < Default Receiver Type > ROGUE SNR-8000 < Default Antenna Type > DORNE MARGOLIN T < Include S/N Counts as "Observations" > L1&L2 < (NO, L1, L1&L2) </pre>	

2.5.5.1.1	Rogue Rawdata Files to RINEX Obs.Files: Input 1	HELP
<pre> Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file. Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers. Default Receiver Type Single Frequency: Dual Frequency: </pre>		

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Default Antenna Type
Single Frequency:
Dual Frequency:

Names for the receiver and antenna types that will be proposed to
to the operator during execution of the RINEX converter program
(provided the program runs in interactive mode, see next help panel).
Depending on the type of the receiver (single or dual frequency
receiver the converter program assumes to have detected) the program
will propose the names in the "Single Frequency" or "Dual Frequency"
input field.
The final values will be included into the RINEX headers. They also
have to agree with the values in the antenna phase center file (see
e.g. {X:\GEN\PHAS_IGS.01}).
RECOMMENDED VALUE: Use the values proposed by the International
GPS Service for Geodynamics (see
{X:\GEN\RCVR_ANT.TAB} and
ftp://igsceb.jpl.nasa.gov/igsceb/station/general/rcvr_ant.tab)

Include S/N Counts as "Observations":
If L1 or L1&L2 is specified the raw signal strength values found in
the raw data files are stored as S1 or S1 and S2 observations into
the RINEX files.
RECOMMENDED VALUE: NO
    
```

WG

2.5.5.1.2	Rogue Rawdata Files to RINEX Obs.Files: Input 2		
Signal to Noise Ratio	Minimum	Threshold	Maximum
Frequency L1	> 0 <	> 40 <	> 510 <
Frequency L2	> 0 <	> 4 <	> 255 <
Sampling Interval		> 30 <	Seconds
Offset to Full Minute		> 0 <	Seconds
GPS time - UTC time		> 0 <	Seconds
(set to 0 if receiver runs in GPS time!)			
Take First Four Characters for RINEX Filename	> YES <	(YES or NO)	

2.5.5.1.2	Rogue Rawdata Files to RINEX Obs.Files: Input 2	HELP
<p>Signal Strength: Frequency L1 / Frequency L2: The minimum/threshold/maximum values are used to compute the s/n stored into the RINEX files from the values found in the raw data files according to the scheme:</p> <pre> minimum value (and smaller) --> RINEX s/n value: 1 threshold --> RINEX s/n value: 5 maximum value (and larger) --> RINEX s/n value: 9 </pre> <p>(linear functions between 1 and 5 or 5 and 9, respectively, rounded to the nearest integer)</p> <p>The threshold value is the signal strength above which there is no doubt that the signal was strong enough to generate a good observation. It is translated into a 5 in the RINEX file.</p> <p>The values have to be adjusted according to the actual receiver (and maybe antenna) type. If you are unsure what values to use, run the converter program and observe the minimum and maximum values found in the raw data files that are printed in the program listing, modify the values in the data panel accordingly and rerun the program.</p> <p>Sampling Interval: Used to decimate data. A sampling rate of 30 seconds will select data at epochs 00 and 30 seconds after each full minute. Sampling interval 0 will convert all observations found.</p>		

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RECOMMENDED VALUE: 30 Seconds

Offset to Full Minute:
Used to shift the sampling epoch with respect to the full minute.
RECOMMENDED VALUE: 0 Seconds

GPS time - UTC time:
Earlier Rogue versions ran on UTC time, so this was the place where
the necessary correction to the time tags could be specified.
RECOMMENDED VALUE: 0 Seconds

Take First Four Characters for RINEX Filename:
If YES the converter will propose RINEX file names using the first
four characters of the site name found in the raw data file.
RECOMMENDED VALUE: YES
    
```

WG

2.5.5.2	(Created) Rogue Eph.Files to RINEX Files (Main Data Panel)
<pre> CAMPAIGN > < (blank for selection list) Name of File Containing List of Rawdata Files FILELIST > < (blank: List has to be created) Device/Path to Rawdata Files RAWDATA > X:\EUROCLUS\RAW\ < Extension of Created Eph.Files RAWEXT > EPH < </pre>	

2.5.5.2	(Created) Rogue Eph.Files to RINEX Files (Main Data Panel)	HELP
<pre> General remarks: With this and the following panels you select the processing options for the program RGRINEXN. The main purpose of this program is the creation of RINEX navigation message files from Rogue raw data files. Before you run this program you have to run RGRINEX0 to create the special ephemeris file containing just the ephemeris records from the rawdata file. Name of File Containing List of Rawdata Files FILELIST: Full name (i.e. including path) of a file containing a list of the raw data file names (body of filenames plus extensions, no paths!). The list has to be left-justified, one filename per line. If the input field is left blank, the file list will be created interactively. RECOMMENDED VALUE: blank Device/Path to Rawdata Files RAWDATA: Path to the raw data files. EXAMPLE: D:\TESTV34\RAW\ Extension of Created Eph.Files RAWEXT: Extension of the raw data filenames. Used to generate a selection list for the interactive generation of the file list. RECOMMENDED VALUE: EPH (The value has to be identical with the corresponding value of the program RGRINEX0) </pre> <p style="text-align: right;">WG</p>		

B. Option Panels and Help Panels

2.5.5.2.1	(Created) Rogue Eph.Files to RINEX Files: Input 1
Comments: > < > < > <	
Agency Running Program : > ANONYMOUS <	
Take First 4 Char for Filename Creation : > YES < (YES or NO)	

2.5.5.2.1	(Created) Rogue Eph.Files to RINEX Files: Input 1	HELP
Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file.		
Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.		
Take First 4 Char for Filename Creation: If YES the converter will propose RINEX file names using the first four characters of the rawdata filename.		
		WG

2.5.6.1	Concatenate RINEX Observation Files (Main Data Panel)	
CAMPAIGN > < (blank for selection list)		
Input Files:		
RINEX FILENAME > < (blank for selection list)		
RINEX FILE EXTENSION > ??0 <		
PATH TO RINEX FILES > < (blank for default path)		
Output Files:		
PATH > < (blank for default path)		

2.5.6.1	Concatenate RINEX Observation Files (Main Data Panel)	HELP
General remarks:		
With this and the following panels you select the processing options for the program CCRINEX0. The main purpose of this program is to concatenate several RINEX observation files of the same station into one file only. You can also use it to extract the observations (of one or more files) of a specified time interval.		
The RINEX concatenation programs also run independently from the Bernese GPS Software. They use as primary options file a file called CCRINEX0.OPT which has to exist in the current or default directory.		
More informations about the RINEX converter programs can be found in the file PCRINEX.TXT which is distributed together with the converters. The most recent converters (at least the PC executables) can be downloaded from our anonymous ftp account (ubeclu.unibe.ch, cd aiub\$ftp, cd pcrinex).		
Input Files:		
RINEX FILENAME:		

Name of the RINEX file(s) to concatenate / cut. They are expected to be in the rawdata campaign subdirectory (usually called RAW, see {DAT032__}). If not: Specify name of campaign subdirectory below.
 RECOMMENDED VALUE: blank to get a selection list.
 If necessary use a wildcard spec or a filename parameter to limit the number of files in the selection list.

RINEX FILE EXTENSION:
 Extension of the RINEX observation files.
 RECOMMENDED VALUE: ??0 or yy0 (where yy = two-digit year)

PATH TO RINEX FILES:
 Name of the actual campaign subdirectory where the RINEX observation files can be found. If blank, the subdirectory according to menu 0.3.2 is assumed (see {DAT032__}).

Output Files:
 PATH:
 Name of the actual campaign subdirectory where the concatenated files will be stored. If blank, the subdirectory according to menu 0.3.2 is selected (see {DAT032__}).

WG

2.5.6.1.1	Concatenate RINEX Observation Files: Input 1
<p>Comments: > < > < > <</p> <p>Agency Running Program > ANONYMOUS <</p> <p>Automatic Filename Creation > YES < (YES or NO, ASIS = no interaction)</p> <p>Sampling Interval > 30 < Seconds</p> <p>Offset to Full Minute > 0 < Seconds</p> <p>Time Window: FROM > yy mm dd < > hh mm < TO > yy mm dd < > hh mm < or SESSION NUMBER > < YEAR > <</p>	

2.5.6.1.1	Concatenate RINEX Observation Files: Input 1	HELP
<p>Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file.</p> <p>Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.</p> <p>Automatic Filename Creation: If YES, the converter will propose a RINEX file name using the first four characters of the first RINEX input file used, the date of the first observation record in the concatenated file and a file sequence number of 0. (See also under "Time Window" below). If ASIS there will be no interaction at execution time at all. RECOMMENDED VALUE: YES</p> <p>Sampling Interval: Used to decimate data. A sampling rate of 30 seconds will select data at epochs 00 and 30 seconds after each full minute. Sampling interval 0 will convert all observations found. RECOMMENDED VALUE: 0 Seconds</p>		

B. Option Panels and Help Panels

Offset to Full Minute:

Used to shift the sampling epoch with respect to the full minute.
RECOMMENDED VALUE: 0 Seconds

Time Window:

FROM: TO:
or
SESSION NUMBER: YEAR:

Possibility to include observations from a given time window only.
The window can either be explicitly given or defined through a
session number and the previously defined session panel (menu 1.3).

Filename parameters can be used in the SESSION NUMBER and YEAR fields.

In case where wildcard definitions in the session panels do not include
the year it has to be given here as well (see {DAT132__}). Blank else.

In case of 4-character session numbers the 4th character is used as
file sequence number.

WG

2.5.6.2	Concatenate RINEX Navigation Files (Main Data Panel)		
CAMPAIGN	>	<	(blank for selection list)
Input Files:			
RINEX FILENAME	>	<	(blank for selection list)
RINEX FILE EXTENSION	> ??N	<	
PATH TO RINEX FILES	>	<	(blank for default path)
Output File:			
FIRST FOUR CHARACTERS	> BRDC	<	
PATH	>	<	(blank for default path)

2.5.6.2	Concatenate RINEX Navigation Files (Main Data Panel)	HELP
General remarks:		
<p>With this and the following panels you select the processing options for the program CCRINEXN. The main purpose of this program is to concatenate several RINEX navigation message files of the same station or of different stations into one file only. You can also use it to extract the messages (of one or more files) of a specified time interval. Redundant messages are not retained.</p> <p>The RINEX concatenation programs also run independently from the Bernese GPS Software. They use as primary options file a file called CCRINEXN.OPT which has to exist in the current or default directory.</p> <p>More informations about the RINEX converter programs can be found in the file PCRINEX.TXT which is distributed together with the converters. The most recent converters (at least the PC executables) can be downloaded from our anonymous ftp account (ubeclu.unibe.ch, cd aiub\$ftp, cd pcrinex).</p>		
Input Files:		
RINEX FILENAME:		
Name of the RINEX files to concatenate / cut. They are expected to be in the rawdata campaign subdirectory (usually called RAW, see {DAT032__}). If not: Specify name of campaign subdirectory below.		
RECOMMENDED VALUE: blank to get a selection list.		
If necessary use a wildcard spec or a filename parameter to limit the number of files in the selection list.		


```

RINEX FILE EXTENSION:
  Extension of the RINEX observation files.
  RECOMMENDED VALUE: ??N or yyN (where yy = two-digit year)

PATH TO RINEX FILES:
  Name of the actual campaign subdirectory where the RINEX observation
  files can be found. If blank, the subdirectory according to menu 0.3.2
  is assumed (see {DAT032__}).

Output Files:

FIRST FOUR CHARACTERS:
  The code 'cccc' to use for the proposed output filename.
  Default naming scheme:

      ccccdfff.yyN

      ddd: day of the year
      f: file sequence number (0 for concatenated file)
      yy: two-digit year

PATH:
  Name of the actual campaign subdirectory where the concatenated files
  will be stored. If blank, the subdirectory according to menu 0.3.2 is
  selected (see {DAT032__}).
  
```

WG

2.5.6.2.1	Concatenate RINEX Navigation Files: Input 1
<pre> Comments: > < > < > < Agency Running Program > ANONYMOUS < Automatic Filename Creation > NO < (YES or NO, ASIS = no interaction) Time Window: FROM > yy mm dd < > hh mm < TO > yy mm dd < > hh mm < or SESSION NUMBER > < YEAR > < </pre>	

2.5.6.2.1	Concatenate RINEX Navigation Files: Input 1	HELP
<pre> Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file. Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers. Automatic Filename Creation: If YES the converter will propose a RINEX file name using the first four characters given in the previous panel, the date of the first navigation record in the concatenated file and a file sequence number of 0. If ASIS there will be no interaction at execution time at all. RECOMMENDED VALUE: YES Time Window: FROM: TO: or SESSION NUMBER: YEAR: </pre>		

B. Option Panels and Help Panels

Possibility to include observations from a given time window only.
The window can either be explicitly given or defined through a session number and the previously defined session panel (menu 1.3).

Filename parameters can be used in the SESSION NUMBER and YEAR fields.

In case where wildcard definitions in the session panels do not include the year it has to be given here as well (see {DAT132__}). Blank else.

WG

2.5.6.3	Concatenate Precise Orbit Files (Main Data Panel)		
CAMPAIGN	>	<	(blank for selection list)
Input Files:			
ORBIT FILENAME	>	<	(blank for selection list)
ORBIT FILE EXTENSION	>	PRE <	
PATH TO ORBIT FILES	>	<	(blank for default path)
Output File:			
FIRST FOUR CHARACTERS	>	PREC <	
OUTPUT FILE EXTENSION	>	PRE <	
PATH	>	<	(blank for default path)

2.5.6.3	Concatenate Precise Orbit Files (Main Data Panel)	HELP
General remarks:		
<p>With this and the following panels you select the processing options for the program CCPREORB. The main purpose of this program is to concatenate several precise ephemeris files into one file only.</p>		
Input Files:		
ORBIT FILENAME:		
<p>Name of the precise ephemeris files to concatenate. They are expected to be in the orbit file campaign subdirectory (usually called ORB, see {DAT033__}). If not: Specify name of campaign subdirectory below.</p>		
<p>RECOMMENDED VALUE: blank to get a selection list. If necessary use a wildcard spec or a filename parameter to limit the number of files in the selection list.</p>		
ORBIT FILE EXTENSION:		
<p>Extension of the precise ephemeris files. RECOMMENDED VALUE: PRE</p>		
PATH TO ORBIT FILES:		
<p>Name of the actual campaign subdirectory where the precise ephemeris files can be found. If blank, the subdirectory according to menu 0.3.3 is assumed (see {DAT033__}).</p>		
Output File:		
FIRST FOUR CHARACTERS:		
<p>The code 'cccc' to use for the name of the concatenated precise ephemeris file. Filename parameters can be used in this field.</p>		
OUTPUT FILE EXTENSION:		
<p>The file name extension to use for the output filename. RECOMMENDED VALUE: PRE (no default value exists!)</p>		
File naming scheme:		
<p>ccccdds.ext with cccc = code ddd = day of the year of first ephemeris s = file sequence number (0)</p>		

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                                ext = extension

PATH:
Name of the actual campaign subdirectory where the concatenated files
will be stored. If blank, the subdirectory according to menu 0.3.3 is
selected (see {DAT033__}).
    
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WG

2.5.6.3.1	Concatenate Precise Orbit Files: Input 1
<pre> Comments: > < Agency Running Program > ANONYMOUS < Automatic Filename Creation > NO < (YES or NO, ASIS = no interaction) Time Window: FROM > yy mm dd < > hh mm < TO > yy mm dd < > hh mm < or SESSION NUMBER > < YEAR > < </pre>	

2.5.6.3.1	Concatenate Precise Orbit Files: Input 1	HELP
<pre> Comments: Up to three lines of comments that will be included into the generated program protocol. Agency Running Program: Name of the agency/institution creating the ephemeris files. It will be included into the header of the concatenated orbit file. Automatic Filename Creation: If YES the converter will generate a file name using the first four characters given in the previous panel, the date of the first ephemeris record in the concatenated file and a file sequence number of 0. RECOMMENDED VALUE: YES Time Window: FROM: TO: or SESSION NUMBER: YEAR: Possibility to include ephemerides from a given time window only. The window can either be explicitly given or defined through a session number and the previously defined session panel (menu 1.3). Filename parameters can be used in the SESSION NUMBER and YEAR fields. In case where wildcard definitions in the session panels do not include the year it has to be given here as well (see {DAT132__}). Blank else. </pre> <p style="text-align: right;">WG</p>		

2.5.7	Split RINEX Observation Files (Main Data Panel)
<pre> CAMPAIGN > < (blank for selection list) Input Files: RINEX FILENAME > < (blank for selection list) RINEX FILE EXTENSION > ??0 < </pre>	

2.5.7	Split RINEX Observation Files (Main Data Panel)	HELP
<p>General remarks:</p> <p>With this and the following panels you select the processing options for the program RNKSPPLIT. The main purpose of this program is to split a RINEX observation file containing portions collected on several stations into one file per station. Data collected during kinematic phases are skipped. The primary application is to process files collected in rapid static or similar modes.</p> <p>Input Files:</p> <p>RINEX FILENAME: Name of the RINEX files to split. They are expected to be in the rawdata campaign subdirectory (usually called RAW, see {DAT032__}). RECOMMENDED VALUE: blank to get a selection list. If necessary use a wildcard spec or a filename parameter to limit the number of files in the selection list.</p> <p>RINEX FILE EXTENSION: Extension of the RINEX observation files. RECOMMENDED VALUE: ??0 or yy0 (where yy = two-digit year)</p> <p style="text-align: right;">WG</p>		

2.5.7.1	Split RINEX Observation Files: Input 1
<p>Comments:</p> <p>> < > < > <</p> <p>Agency Running Program > ANONYMOUS <</p> <p>Automatic Filename Creation > NO < (YES or NO) Sampling Interval > 0 < Seconds Offset to Full Minute > 0 < Seconds</p>	

2.5.7.1	Split RINEX Observation Files: Input 1	HELP
<p>Comments: Up to three lines of comments that will be included into the headers of each generated RINEX file.</p> <p>Agency Running Program: Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.</p> <p>Automatic Filename Creation: If YES, the converter will propose RINEX file names using the first four characters of the station name, the date of the first observation record in the output file and a sequence number of 1. RECOMMENDED VALUE: YES</p> <p>Sampling Interval: Used to decimate data. A sampling rate of 30 seconds will select data at epochs 00 and 30 seconds after each full minute. Sampling interval 0 will convert all observations found. RECOMMENDED VALUE: 0 Seconds</p> <p>Offset to Full Minute: Used to shift the sampling epoch with respect to the full minute. RECOMMENDED VALUE: 0 Seconds</p> <p style="text-align: right;">WG</p>		

2.5.9	Creation of RINEX Met.Files
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CAMPAIGN                >          < (blank for selection list)

Comments:
>                          <

Agency Running Program  > ANONYMOUS          <

Input Data:
Units: Pressure          > MM_HG < (MBAR or MM_HG)
      Temperature        > DEG_C < (DEG_C or DEG_F)
      Humidity            > REL_H < (REL_H or WET_T)
Order of Input          > PTH < (PTH, PHT or TPH)
Time Increments         > 30 < Seconds
Epoch Correction to    > 0 < Hours

Take First Four Characters for RINEX Filename > YES < (YES or NO)
    
```

2.5.9	Creation of RINEX Met.Files	HELP
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General remarks:

With this panel you select the processing options for the program RXMETEO. The main purpose of this program is to create RINEX meteorological data file from manually entered surface met data.

This RINEX converter program also runs independently from the Bernese GPS Software. It uses as primary options file a file called RXMETEO.OPT which has to exist in the current or default directory.

More informations about the RINEX converter programs can be found in the file PCRINEX.TXT which is distributed together with the converters. The most recent converters (at least the PC executables) can be downloaded from our anonymous ftp account (ubecclu.unibe.ch, cd aiub\$ftp, cd pcrinex).

Comments:
One line of comments that will be included into the headers of each generated RINEX file.

Agency Running Program:
Name of the agency/institution creating the RINEX files. Will be included into the RINEX headers.

Input Data:
Units: Pressure: Millibar or millimeter mercury
Temperature: Degrees Celsius or Fahrenheit
Humidity: Relative humidity (percents) or wet temperature
The data will be converted to millibars, degrees Celsius, and percents if necessary.

Order of Input:
The order in which you will enter the surface met data:
Pressure - Temperature - Humidity (PTH)
Pressure - Humidity - Temperature (PHT)
Temperature - Pressure - Humidity (TPH)

Time Increments:
The program will propose the time tag of the next met value automatically

Epoch Correction to UTC:
If the time tags are not given in UTC, you can have the correction done by the program.

Take First Four Characters for RINEX Filename:
If YES the converter will propose RINEX file names using the first four characters of the station name, the date of the first met data in the output file and a sequence number of 1.

WG

2.6.1	TRANSFER: BERNESE OBS. to RINEX (Main Data Panel)		
CAMPAIGN	>	<	(blank for selection list)
Input Files:			
PHASE	>	<	(NO, if not used; blank for sel.list)
CODE	>	<	(NO, if not used; blank for phase names)
COORDINATES	>	<	(blank for selection list)
Output Files:			
RINEX	>	<	(blank for same names as phase files)
EXTENSION	>	960 <	

2.6.1	TRANSFER: BERNESE OBS. to RINEX (Main Data Panel)	HELP
General remarks:		
<p>With this and the following panel you select the processing options for the program BV3RXO. The main purpose of this program is to convert Bernese Observation Files into the corresponding number of RINEX files. If there are phase and code files you can specify them both to generate RINEX files containing both, phase and code observations.</p>		
Input Files:		
<p>PHASE: Name of the Bernese Phase Observation Files to be converted or file specification to create a file selection panel. If necessary use a wildcard spec or a filename parameter to limit the number of files in the selection list.</p>		
<p>CODE: If you leave the field blank, filenames identical to the phase files are used. NO does not use any code files.</p>		
<p>COORDINATES: A coordinate file where the station coordinates are extracted to be put into the RINEX file header.</p>		
Output Files:		
<p>RINEX: If you convert one file only, you can specify the name of the RINEX output filename. The default names (leave the field blank) are the same as the Bernese files (but a different extension).</p>		
<p>EXTENSION: Extension of the RINEX filename. There is no default value. Filename parameters may be used.</p>		
WG		

2.6.1-1	BERNESE OBS.: INPUT		
Processing Options:			
ADD CAMPAIGN/TITLE AS COMMENT	>	YES <	(YES or NO)
Comment Lines:			
LINE 1	>		<
LINE 2	>		<
LINE 3	>		<



2.6.1-1	BERNESE OBS.: INPUT	HELP
<p>Processing Options:</p> <p>ADD CAMPAIGN/TITLE AS COMMENT: If YES, the campaign name and title will be added as comment line to the RINEX headers.</p> <p>Comment Lines:</p> <p>LINE 1: LINE 2: LINE 3: Up to three comment lines to be included into the RINEX headers.</p> <p style="text-align: right;">WG</p>		

2.6.2	TRANSFER: BERNESE BRD. to RINEX (Main Data Panel)	
<p>CAMPAIGN > < (blank for selection list)</p> <p>Input Files: BROADCAST > < (blank for selection list)</p> <p>Output Files: RINEX > < (blank for same names as brd. files) EXTENSION > 96N <</p>		

2.6.2	TRANSFER: BERNESE BRD. to RINEX (Main Data Panel)	HELP
<p>General remarks:</p> <p>With this panel you select the processing options for the program BV3RXN. The main purpose of this program is to convert Bernese Broadcast Files into the same number of RINEX Navigation Message Files.</p> <p>Input Files:</p> <p>BROADCAST: Name of the Bernese Broadcast Files to be converted or file specification to create a file selection panel. If necessary use a wildcard spec or a filename parameter to limit the number of files in the selection list.</p> <p>Output Files:</p> <p>RINEX: If you convert one file only, you can specify the name of the RINEX output filename. The default names (leave the field blank) are the same as the Bernese files (but with a different extension).</p> <p>EXTENSION: Extension of the RINEX filename. There is no default value. Filename parameters may be used.</p> <p style="text-align: right;">WG</p>		

2.7.1	TRANSFER: RINEX OBS. to BERNESE (Main Data Panel)	
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CAMPAIGN	>	<	(blank for selection list)
Input Files:			
RINEX	>	<	(blank for selection list)
RINEX EXTENSION	>	%0 <	(Wildcards allowed)
COORDINATES	>	APRIORI <	(NO, if no update; blank for sel.list)
Translation Tables:			
STATION NAMES	>	ITRFCODE <	(NO, if not used; blank for sel.list)
RCVR / ANTENNA	>	ITRFCODE <	(NO, if not used; blank for sel.list)
ANTENNA HEIGHTS	>	ITRFCODE <	(NO, if not used; blank for sel.list)
STA.NAMES: STOP	>	YES <	(NO or YES, yes=stop if station not found)
ANT.HGT. : STOP	>	YES <	(NO or YES, yes=stop if ant.hgt not found)
Output Files:			
CODE/PHASE/RANGE	>	<	(blank: def.name; NO: do not create)
RANGES (SLR)	>	NO <	(NO or YES)

2.7.1	TRANSFER: RINEX OBS. to BERNESE (Main Data Panel)	HELP
<p>General Remarks: This program converts the RINEX observation files into the Bernese format.</p> <p>Input Files:</p> <p>RINEX: Select the RINEX files to be converted to Bernese. Several files (even from different sessions) may be processed in one program run. For each RINEX file a Bernese zero-diff. code and a zero-diff. phase file will be created. If you would like to concatenate or split up RINEX files use the program CCRINEXO (see menu 2.5.6.1) before transferring the data into the Bernese observation file format.</p> <p>RINEX EXTENSION: The extension of the RINEX observation files you want to process must entered in this field. The official RINEX extension for observation files is "yy0" where yy is the year and "0" stands for "Observations". You may use wildcards for this extension, e.g. ??0 or %0. RECOMMENDED VALUE: %0</p> <p>COORDINATES: If you enter a coordinate file name here the site coordinates in the RINEX file(s) will be saved in this coordinate file. If at the beginning of a campaign processing you do not have any good a priori coordinates you may use this option to obtain a coordinate file containing the RINEX coordinates (coordinate flag "R"). You may not enter the name of a coordinate file that does not yet exist. The file must already exist, although it may only contain the file header (no coordinates or station names). Such a file may be created using menu 1.4.1 (see {DAT141}). Setting the option to NO means that no coordinate file will be updated.</p> <p>Translation Tables:</p> <p>STATION NAMES: You may use a station name translation table to make sure that in the Bernese observation files you will have correct station names. An example of such a translation table is given in {X:\INX\EXAMPLE.STN}. You may create a translation table of your own using menu 1.4.2 (see {DAT142}). Wildcards may be used in the translation table. With "NO" the station names will be taken from the RINEX file(s) without any check or translation.</p> <p>RCVR / ANTENNA: You should make sure that you use -- whenever possible -- official receiver and antenna names in the Bernese software. It is therefore useful to have the option of a translation table for receiver and antenna names. By specifying a translation table here the receiver and antenna names in the RINEX files will be translated. An example of such a translation table (using also wildcards) is given in</p>		

{X:\INX\EXAMPLE.TRN}. The official receiver/antenna names used within the IGS may be found in {X:\GEN\RCVR_ANT.TAB} and corresponding antenna sketches in {X:\GEN\ANTENNA.GRA}. You should also make sure that the receiver/antenna names you are going to use within the Bernese software are consistent with the names in the antenna phase center correction file (see e.g. {X:\GEN\PHASITRF.}). A receiver/antenna name translation table may be created using menu 1.4.5 (see {DAT145__}). With "NO" no translation takes place and the names given in the RINEX files are written into the Bernese files.

ANTENNA HEIGHTS:

Here a translation table for antenna heights may be specified. Instead of the RINEX antenna height the height given in the translation table is written into the Bernese observation files. For an example of such a translation table see {X:\INX\EXAMPLE.HTR}. With "NO" the antenna height given in the RINEX file will be used.

STA.NAMES: STOP:

This option defines whether the program should stop if the station in the RINEX file is not present in the station name translation table or whether it should continue, just using the RINEX station name without translation.

ANT.HGT. : STOP:

If "YES" is entered the program will stop if an antenna height is found that is not present in the antenna height translation table, else the program will continue and write the RINEX antenna height into the Bernese observation header files.

Output Files:

CODE/PHASE/RANGE:

Definition of the Bernese observation output file names. The usual setting is "blank": the output file names are then generated automatically using the station name abbreviation table (see menu 1.4.3) and the session table (see menu 1.3.2). Examples of an abbreviation table and a session table are available in {X:\INX\DAT143__.PAN} and {X:\INX\DAT132__.PAN}. "NO" means that no output files are created.

RANGES (SLR):

This option has to be set to "YES" ONLY if RINEX files containing SLR data are converted into the Bernese observation file format. The path and extension of the Bernese output files are then taken from the default setting for range observation files given in {DAT032__}.

MR

2.7.1-1	RINEX OBS.: INPUT		
Title Line:	TITLE	>	<
Signal Strength Requirements:	MINIMUM SIGNAL STRENGTH	> 1 <	(0-9)
	ACCEPT SIGNAL STRENGTH = 0	> YES <	(YES or NO)
Sampling:	SAMPLING INTERVAL	>	< (sec; blank: take all obs)
	SAMPLING OFFSET TO FULL MINUTE	> 0 <	(sec)
Session Numbering:	LENGTH OF SESSION NUMBERS	> 4 <	(3 or 4 characters)

2.7.1-1	RINEX OBS.: INPUT	HELP
Title Line:		

B. Option Panels and Help Panels

<p>TITLE: This title line will be included into the Bernese observation file header. Together with this title also the campaign name will be saved. This title line here should contain a very short description of the campaign and should be the same for all files of the same campaign.</p> <p>Signal Strength Requirements:</p> <p>MINIMUM SIGNAL STRENGTH: This option can be used to eliminate data with a low signal/noise ratio. According to the RINEX format definition the signal/noise ratio is mapped into values from 0 to 9. By setting this option e.g. to 1 you can remove any data with signal/noise values of 0. Some RINEX converters use a value of 0 to mark bad observations. RECOMMENDED VALUE: 1</p> <p>ACCEPT SIGNAL STRENGTH = 0: In addition to the option above you may specify whether data with a signal strength of 0 should be kept. "YES" means that observations with a signal strength of 0 are kept and written to the Bernese files. RECOMMENDED VALUE: YES</p> <p>Sampling:</p> <p>SAMPLING INTERVAL: The original RINEX observations may be sampled using this option. If this option is left "blank" all the observations in the original RINEX files will be transferred to the Bernese format. If you specify a sampling rate in seconds, the observations will be decimated accordingly. RECOMMENDED VALUE: blank</p> <p>SAMPLING OFFSET TO FULL MINUTE: If you are sampling the data you may specify an offset to the full minute for the observations to be taken. E.g. if you sample your original 10 sec data at 60 seconds, you might specify an offset of 10 seconds to the full minute. The observation epochs of the resulting Bernese observation file will then be 10 sec, 70 sec, 130 sec, ... RECOMMENDED VALUE: 0 sec</p> <p>Session Numbering:</p> <p>LENGTH OF SESSION NUMBERS: In the older versions of the Bernese GPS Software (Version 3.5 and older) the session numbering was done with 3 digits. Starting with version 4.0 sessions have now 4 characters and may indeed contain characters and not only numbers. Depending on whether 3- or 4-character sessions were used in the session table (see menu 1.3) you should specify 3 or 4 here.</p>	MR
---	----

2.7.2	TRANSFER: RINEX NAV. to BERNESE (Main Data Panel)	
CAMPAIGN	>	< (blank for selection list)
Input Files:		
RINEX	>	< (blank for selection list)
Extension of Input Files (Wildcards allowed):		
EXTENSION	>	%%N <
Output Files:		
BROADCAST	>	< (blank for same names as Rinex files)

2.7.2	TRANSFER: RINEX NAV. to BERNESE (Main Data Panel)	HELP
General Remark:		
This program is used to transfer RINEX Navigation files into the Bernese		

```

broadcast file format.

Input Files:

RINEX:
  Selection of RINEX navigation files. Several files may be selected in
  the same program run. One Bernese broadcast file will be created for
  each RINEX navigation file. To concatenate RINEX navigation files use
  the program CCRINEXN (see menu 2.5.6.2) before starting this transfer
  program here.

Extension of Input Files (Wildcards allowed):

EXTENSION:
  Specification of the RINEX navigation file extension. Wildcards are
  allowed. The official RINEX navigation file extension is "yyN", where
  yy stands for the year and "N" for "Navigation".
  RECOMMENDED VALUE: %%N

Output Files:

BROADCAST:
  You may enter the broadcast output file name here. Usually you will
  leave this field blank, so that the Bernese broadcast file obtains the
  same name as the RINEX navigation file (but a different extension).
  
```

MR

2.7.3	TRANSFER: RINEX MET.FILES to BERNESE (Main Data Panel)	
	CAMPAIGN > < (blank for selection list)	
	Input Files:	
	RINEX MET.FILE > < (blank for selection list)	
	STATION NAMES > < (NO, if not used; blank for sel.list)	
	STA.NAMES: STOP > YES < (NO or YES, yes=stop if stat. not found)	
	Extension of RINEX Input Files:	
	EXTENSION > ??M < (Wildcards allowed)	
	Output File:	
	NEW/APPEND > NEW < (NEW, APPEND)	
	BERNESE MET.FILE > < (blank for selection list [APPEND] or for same name as 1st RINEX file [NEW])	
	Title Line:	
	TITLE > <	

2.7.3	TRANSFER: RINEX MET.FILES to BERNESE (Main Data Panel)	HELP
	General Remark:	
	Use this program to transfer RINEX meteorological files into the Bernese meteo file format.	
	Input Files:	
	RINEX MET.FILE:	
	Selection of RINEX meteorological files. More than one file may be selected per program run, but only files of ONE site may be combined in the same run.	
	STATION NAMES:	
	In this input field you may supply the name of a station name translation table. The station names will then be translated before being written to the Bernese meteo file. An example of a station translation file is given in {X:\INX\EXAMPLE.STN}. With "NO" no translation takes place and the site name given in the RINEX file(s) will be used also in the Bernese format.	
	STA.NAMES: STOP:	

B. Option Panels and Help Panels

This option defines whether the program should stop if the station in the RINEX file is not present in the station name translation table or whether it should continue, just using the RINEX station name without translation.

Extension of RINEX Input Files:

EXTENSION:

Enter here the extension of the RINEX meteorological files you want to process. The official RINEX extension for meteorological files is "yyM" where yy is the year and "M" stands for "Meteo". You may use wildcards for this extension, e.g. ??M or %?M.

RECOMMENDED VALUE: %?M

Output File:

NEW/APPEND:

This option defines whether the RINEX meteo data should be appended to an already existing Bernese meteo file (APPEND) or whether a new Bernese meteo file should be created (NEW).

BERNESE MET.FILE:

In this field you enter the Bernese meteo output file name. If APPEND has been specified in the previous field "blank" will give you a selection list, whereas if NEW was entered in the previous field, "blank" means that the name of the first RINEX meteo file will be used as output name.

Title Line:

TITLE:

The title entered here will be the title line for the Bernese meteo output file.

MR

2.7.4	TRANSFER: Create Pseudographics of RINEX Obs.file	
CAMPAIGN	>	< (blank for selection list)
Rinex Input Files:		
RINEX	>	< (blank for selection list)
MEASUREMENT TYPE	> PHASE	< (CODE, PHASE)
FREQUENCIES	> BOTH	< (L1,L2,BOTH)
EXTENSION	> ??0	<
Translation Tables:		
STATION NAMES	> NO	< (NO, if not used; blank for sel.list)
STA.NAMES: STOP	> NO	< (NO or YES, yes=stop if stat. not found)
Output Files:		
SUMMARY FILE	> RXGRSUM	< (NO, if not to be created)

2.7.4	TRANSFER: Create Pseudographics of RINEX Obs.file	HELP
General Remark:		
Use this program to generate a simple ASCII graphic file with information about the satellites and satellite windows. The output file gives you a summary of the observation material available in the selected RINEX files.		
Rinex Input Files:		
RINEX:		
Selection of one or more RINEX observation files. The RINEX files you select should not cover more than one day of data and should all belong to the same session.		
MEASUREMENT TYPE:		

In this field you enter the measurement type you would like to get statistical information about.

FREQUENCIES:
 Select the frequency or frequencies you would like to get a summary of. With the option "BOTH" the information will be displayed for both frequencies.

EXTENSION:
 The extension of the RINEX observation files you want to process. The official RINEX extension for observation files is "yy0" where yy is the year and "0" stands for "observations". You may use wildcards for this extension, e.g. ??0 or %?0.
 RECOMMENDED VALUE: %?0

Translation Tables:

STATION NAMES:
 You may use a station name translation table to make sure that in the graphic output file you will have correct station names. An example of such a translation table is given in {X:\INX\EXAMPLE.STN}. Wildcards may be used in the translation table. With "NO" the station names will be taken from the RINEX file(s) without any check or translation.

STA.NAMES: STOP:
 This option defines whether the program should stop if the station in the RINEX file is not present in the station name translation table or whether it should continue, just using the RINEX station name without translation.

Output Files:

SUMMARY FILE:
 Enter the name of the summary output file in this field. If you enter "NO" here, no summary file will be created. The summary file contains a table telling how many stations observed each satellite and a table on how many satellites were observed by each station.

MR

2.7.5	TRANSFER: Check Phases Using Melbourne/Wuebbena Combination
<p>CAMPAIGN > < (blank for selection list)</p> <p>Rinex Input Files: RINEX > < (blank for selection list)</p> <p>Extension of Rinex Input Files (Wildcards allowed): EXTENSION > ??0 <</p> <p>Extension of Rinex Output Files (Wildcards not allowed; Overwrite Files if EXTENSION > ??0 < blank or same extension as Input Files)</p> <p>Translation Tables: STATION NAMES > NO < (NO, if not used; blank for sel.list) STA.NAMES: STOP > NO < (NO or YES, yes=stop if stat. not found)</p> <p>Output Files: RESIDUALS > NO < (NO, if not used)</p>	

2.7.5	TRANSFER: Check Phases Using Melbourne/Wuebbena Combination	HELP
<p>General remarks:</p> <p>The program checks the phase observations for cycle slips based on the phase L1 and L2 observations AND the pseudo-range observations P1 and P2.</p> <p>The Melbourne/Wuebbena linear combination of phase and code observations</p>		

B. Option Panels and Help Panels

allows the determination of the N5 widelane ambiguity independent of the ionosphere, troposphere, and geometry (coordinates, orbits, and clocks). If a cycle slip in N5 is detected a cycle slip flag is set in the RINEX file.

Narrow lane ambiguities are not checked!

A simple data cleaning is also possible (see next panel).

ATTENTION: Data collected under AS conditions should not be screen with this program because the pseudo-range observations are too noisy to reliably detect cycle slips on the 0.86 m level.

Idea: Pre-processing on the zero-difference level without relying on the flags given in the RINEX file.

The ambiguity flags set by RNXCYC will be kept when forming single-difference files (program SNGDIF, menu 4.3) and may be used by the program MAUPRP (menu 4.4.2) as a priori information.

Principle:

given : observations L1, L2, P1, P2 in the RINEX format

computed : for each epoch, each satellite:

$$N_5 = \frac{1}{\text{Lambda}_5} * (L_5 - P_5)$$

with

$$\text{Lambda}_5 = 0.86 \text{ m}$$

$$L_5 = (f_{L1} - f_{L2}) / (f_1 - f_2)$$

$$P_5 = (f_{P1} + f_{P2}) / (f_1 + f_2)$$

f_1, f_2 : Frequencies $154 * 10.23$ MHz, $120 * 10.23$ MHz
(19.0 cm, 24.0 cm)

Rinex Input Files:

RINEX:

Selection of RINEX files. Several files may be processed in the same program run.

Extension of Rinex Input Files (Wildcards allowed):

EXTENSION:

The extension of the RINEX observation files you want to process must entered in this field. The official RINEX extension for observation files is "yy0" where yy is the year and "0" stands for "Observations". You may use wildcards for this extension, e.g. ??0 or %?0.

RECOMMENDED VALUE: %?0

Extension of Rinex Output Files (Wildcards not allowed):

EXTENSION:

Leave the field blank to store the screened RINEX files with the same extension as the original file (overwrite !). If you specify a different extension the original file will not be overwritten. The screened files will be written to files with the same name but with extension you specify here.

Translation Tables:

STATION NAMES:

You may use a station name translation table to translate the station names given in the RINEX files to the names given in the translation

table. Only the station names printed in the program output file will be changed by specifying a translation table. An example of a translation table is given in {X:\INX\EXAMPLE.STN}. You may create a translation table of your own using menu 1.4.2 (see {DAT142__}). Wildcards may be used in the translation table. With "NO" the station names will be taken from the RINEX file(s) without any check or translation.

STA.NAMES: STOP:

This option defines whether the program should stop if the station in the RINEX file is not present in the station name translation table or whether it should continue, just using the RINEX station name without translation.

Output Files:

RESIDUALS:

Residual file to verify the quality of the observations
The residual file may be screened with the program REDISP (menu 5.3).

EB

2.7.5-1	Check Phases Using Melbourne/Wuebbena Combination
TITLE > <	
Detection Boundaries:	
LOW LEVEL VARIATIONS	> 0.60 < L5 cycle
CYCLE SLIP DETECTION LEVEL	> 0.80 < L5 cycle
SIGMA OF WUEBBENA-MELBOURNE COMBINATION	> 0.30 < L5 cycle
Delete Options (0: do not use)	
MAXGAP: Delete bad connected data if gap (before or behind) is larger than	> 0 < sec
MINEPO: Minimum interval with good data	> 120 < sec

2.7.5-1	Check Phases Using Melbourne/Wuebbena Combination	HELP
Title:		
The title will be printed as header information in the program output. The title may help you to remember what options you used for a specific program run.		
Detection Boundaries:		
Options for the detection of cycle slips.		
LOW LEVEL VARIATIONS:		
Differences allowed in the Melbourne/Wuebbena linear combination (LC) between the current epoch and the mean value of all the previous epochs, where no cycle slips occurred.		
Values larger than 1.0 should not be specified, because in that case a cycle slip (of one cycle) cannot be detected.		
Values smaller than 0.6 may result in the detection of a lot of (seeming) cycle slips.		
RECOMMENDED VALUE: 0.6		
CYCLE SLIP DETECTION LEVEL:		
Detection level for cycle slip. If the difference in the Melbourne/Wuebbena LC between the current epoch and the mean of the previous epochs is larger than this detection level, a flag is setup in the first iteration of the program. A second iteration then decides if this value is due to a noisy data point, or if a cycle slip occurred.		
RECOMMENDED VALUE: 0.80		
SIGMA OF WUEBBENA-MELBOURNE COMBINATION:		
The assumed RMS of the Melbourne/Wuebbena combination in		

B. Option Panels and Help Panels

units of L5. This value is used to compute the rms of the mean value of several Wuebbena-Melbourne values only. There is no effect on the decision whether a cycle slip occurs.
RECOMMENDED VALUE: 0.30

Delete Options (0: do not use)

Enables -- in addition to the cycle slip detection -- a simple data cleaning. A bad observation is marked by setting the signal strength to 1 in the RINEX file. In the program RXOBV3, converting RINEX files into BERNESE format, you may specify whether you want to accept observations with a signal strength of 1 and thus remove these observations or not (see {DAT2711_}).

MAXGAP: Mark bad connected data if gap

To delete isolated observations
RECOMMENDED VALUE: 0 sec (which means no deletions)

MINEPO: Minimum interval with good data

Minimum time interval of continuous observations with no cycle slip. Shorter pieces of continuous data will be marked.
RECOMMENDED VALUE: 180 sec

EB

2.7.5-2	Check Phases Using Melbourne/Wuebbena Combination
Cycle slip flags in Rinexfile	
- KEEP ALL RINEX FLAGS	> ALL < (ALL, L5)
- KEEP ONLY IF PROGRAM DETECTS L5-SLIP	
Correction of L1,L2 (small L4 cycleslips may remain)	
	> NO < (YES or NO)
Use of Data with SNR=1 (deleted in first run)	
	> YES < (YES or NO)

2.7.5-2	Check Phases Using Melbourne/Wuebbena Combination	HELP
Cycle slip flags in Rinexfile		
KEEP ALL RINEX FLAGS:		
Possibility to keep all cycle slip flags that were originally in the RINEX files (option ALL).		
Option "L5" only flags the observations where a problem in the Melbourne/Wuebbena LC was detected.		
RECOMMENDED VALUE: ALL		
Correction of L1,L2 (small L4 cycle slips may remain):		
Option "YES" corrects L1 and L2 for detected cycle slips (not only L5). That is in principle not necessary, because an additional unknown ambiguity is setup for these observations in any case.		
Option "NO" leaves the values unchanged and sets flags only.		
RECOMMENDED VALUE: ALL		
Use of Data with SNR=1 (marked in first run):		
This option gives the possibility to ignore data in the RINEX file with SNR=1 (Option "NO").		
If the program RNXCYC is run more than once, all observations marked by setting the signal strength to 1 (SNR=1) may be excluded from an additional data check (see previous panel {DAT2751_}).		
Option "YES" means that all observations are checked independent of the SNR value.		
RECOMMENDED VALUE: YES		

EB

B.5 Option and Help Panels for Menu 3 (Orbits)

3.1.1	ORBITS: MANUAL BROADC. CHECK		
CAMPAIGN	>	<	(blank for selection list)
Input File BROADCAST EPH.	>	<	(blank for selection list)
Output File NEW BROAD.EPH.	>	<	(blank for same name as Broadcast Input File)

3.1.1	ORBITS: "MANUAL" BROADCAST CHECK	HELP
<p>General Remarks:</p> <p>With this and the next panel you select the processing options for the program BRDCHK. The program allows you to detect and remove "bad" broadcast ephemerides. The program BRDTST serves the same purpose, but without manual interaction. We recommend to use the automatic program BRDTST rather than this interactive version BRDCHK.</p> <p>Input File</p> <p>BROADCAST EPH.: Selection of broadcast ephemeris file(s) (Bernese format)</p> <p>Output File</p> <p>NEW BROAD.EPH.: Screened broadcast ephemerides (Bernese format). If left blank the input file will be overwritten (replaced by the screened file). RECOMMENDED OPTION: Overwrite file, leave file name blank.</p> <p style="text-align: right;">TS,GB</p>		

3.1.2	ORBITS: AUTOM. BROADC. CHECK		
CAMPAIGN	>	<	(blank for selection list)
Input File BROADCAST EPH.	>	<	(blank for selection list)
Output File NEW BROAD.EPH.	>	<	(blank: same name as input file, NO: not to be created)

3.1.2	ORBITS: AUTOMATIC BROADCAST CHECK	HELP
<p>General Remarks:</p> <p>With this and the next panel you select the processing options for the program BRDTST. This program automatically removes "bad" broadcast ephemerides.</p> <p>Input File</p> <p>BROADCAST EPH.:</p>		

<p>Selection of broadcast ephemeris file(s) (Bernese format)</p> <p>Output File</p> <p>NEW BROAD.EPH.:</p> <p>Screened broadcast ephemerides (Bernese format). If left blank the input file will be overwritten (replaced) by the screened file.</p> <p>RECOMMENDED OPTION: Replace file, leave file name "blank".</p> <p style="text-align: right;">TS,GB</p>
--

3.2	ORBITS: CREATE TAB.ORBITS	
	<p>CAMPAIGN > < (blank for selection list)</p> <p>Input File</p> <p>EPHEMERIS TYPE > PRECISE < (BROADCAST or PRECISE orbits)</p> <p>BROAD./PRECISE > < (blank for selection list)</p> <p>Output Files</p> <p>TAB. ORBIT > < (blank for same names as input orbit files)</p> <p>SATELLITE CLOCKS > < (NO for none, with precise orbits only)</p> <p>Input Options</p> <p>REFERENCE SYSTEM > J2000 < (B1950 or J2000)</p>	

3.2	ORBITS: CREATE TABULAR ORBITS	HELP
	<p>General Remarks:</p> <p>With this and the next panel you select the processing options for the program BRDTAB or PRETAB. Program BRDTAB transforms the broadcast ephemerides file (Bernese format) into the so-called tabular orbit format, which is a purely internal (Bernese) format. Program PRETAB transforms so-called precise orbits, which are given in either the SP1 or SP3 format, into the tabular orbit format.</p> <p>Input Files:</p> <p>EPHEMERIDES TYPE: Here the type of input format is defined, BROADCAST or PRECISE. Here you select which program (BRDTAB or PRETAB) will be used.</p> <p>BROAD./PRECISE: Selection of the input orbit files (broadcast or precise).</p> <p>Output Files:</p> <p>TAB. ORBIT: Selection of the output orbit files. If left blank, the output names will be the same as the input names except for the extension. RECOMMENDED VALUE: blank</p> <p>SATELLITE CLOCKS: Request satellite clock information to be output to a file. This only works for PRECISE orbits! Another program has to be used to create a file containing broadcast clock information (see program SATCLK, menu 3.8). If you want to be completely independent of broadcast ephemerides or if you do not have broadcast ephemerides available, you HAVE TO generate a satellite clock file here for later use in program CODSP. RECOMMENDED VALUE: a file name</p> <p>Input Options:</p> <p>REFERENCE SYSTEM: Selection of the inertial reference system of the tabular orbit file. RECOMMENDED VALUE: J2000</p>	

TS,GB

3.2-1	PRETAB: CREATE SATELLITE CLOCK FILE
TITLE > <	
INTERVAL FOR POLYNOMIALS	hh mm ss > 24 00 00 <
POLYNOMIAL DEGREE	> 2 <

3.2-1	PRETAB: CREATE SATELLITE CLOCK FILE	HELP
<p>General Remarks:</p> <p>Satellite clock information may be available in precise ephemerides files. In this case you have to create a satellite clock file for later use, in particular for program CODSP (menu 4.2). (Alternatively you would have to use the clock information from broadcast files). We make the distinction between "normal" and "special" use of the clock information. In the "normal" case, the clock information in the precise ephemerides file is used to generate clock polynomials for each satellite (time INTERVALS and POLYNOMIAL DEGREES to be defined below), in the "special" case only the clock values at the epochs of the precise ephemeris (usually 15 min) is written into the file. CODSP may access the precise clock information if the "special" option is selected in this panel. The IGS high accuracy satellite clock information (ins), if used in program CODSP together with IGS orbits and ERPs, leads to single point coordinates accurate to about 50 cm.</p> <p>For such "special" use of program CODSP you have to set both, the POLYNOMIAL INTERVAL and DEGREE to 0 in this panel. Keep in mind that the resulting "special" clock file CANNOT be used for "normal" runs of program CODSP because IGS precise clock files contain clock (and orbit) information "only" every 15 minutes.</p> <p>TITLE: Set a title to be used in the satellite clock output file.</p> <p>INTERVAL FOR POLYNOMIALS: Selection of the time interval for the clock polynomials. For "normal" use a time interval of 12-24 hours will be sufficient. RECOMMENDED VALUE: 12 00 00 (hours, minutes, seconds) for "normal" use, RECOMMENDED VALUE: 00 00 00 (hours, minutes, seconds) for "special" use.</p> <p>POLYNOMIAL DEGREE: Selection of the polynomial degree used for the clock polynomials. For "normal" use a degree of 1-3 will be fine. RECOMMENDED VALUE: 2 for normal use, RECOMMENDED VALUE: 0 for special use.</p>		
TS,GB		

3.3	ORBITS: GENERATE STD.ORBITS	
CAMPAIGN	> <	(blank for selection list)
Input File		
TABULAR ORBITS	> <	(NO in case of orbit update, blank for selection list)
IMPROVED ORBIT ELE.	> NO <	(NO in case of orbit fit, blank for selection list)

B. Option Panels and Help Panels

Output File			
STANDARD ORBITS	>	<	(NO, if not to be saved)
RAD.PRESS. MODEL	>	<	(NO, if not to be saved)
RESIDUALS	> NO	<	(NO, if not to be saved)

3.3	ORBITS: GENERATE STANDARD ORBITS	HELP
<p>General Remarks:</p> <p>With this and the next panel you select the processing options for the program ORBGEN. With this program you generate a so-called standard orbit and a so-called radiation pressure coefficient file. The orbit will be generated starting from either tabular orbit file(s) or a single orbit element file.</p> <p>Input File:</p> <p>TABULAR ORBITS: Selection of the input tabular orbits. More than one file may be selected. If you select files here you are not allowed to select element files (next option).</p> <p>IMPROVED ORBIT ELE.: If you did not select tabular orbit files you have to select an orbit element file. The elements which are generated either by GPSEST or by ADDNEQ, contain two sets of orbits. The first one is the a priori set which was used as reference in the parameter estimation program. The second orbit is the improved orbit as estimated by GPSEST or ADDNEQ.</p> <p>Output File:</p> <p>STANDARD ORBITS: Name of the resulting standard orbit file. RECOMMENDED VALUE: a file name</p> <p>RAD.PRESS. MODEL: Name of the resulting "RPR" file. An "RPR" file is only needed if you intend to an orbit improvement in GPSEST or ADDNEQ. RECOMMENDED VALUE: NO or same name as standard orbit file, if orbit estimation will be performed (extension will be *.STD in the first, *.RPR in the second case)</p> <p>RESIDUALS: Name selection for output residual file. Only possible if tabular files are selected. The binary output file contains the differences between the tabulated orbit positions and the generated orbit. The residual file may be look at using program REDISP (menu 5.3.1). RECOMMENDED VALUE: NO</p> <p style="text-align: right;">TS,GB</p>		

3.3-1	GENERATE STD.ORBITS: INPUT																																
<p>General Options:</p> <table border="0"> <tr> <td># OF ARCS</td> <td>> 1</td> <td><</td> <td></td> </tr> <tr> <td>PRINT RESIDUALS</td> <td>> NO</td> <td><</td> <td>(NO, ALL Iterations, Iteration #)</td> </tr> <tr> <td>ORBIT PREDICTION</td> <td>> NO</td> <td><</td> <td>(NO, # Days)</td> </tr> </table> <p>Numerical Integration:</p> <table border="0"> <tr> <td># OF ITERATIONS</td> <td>> 2</td> <td><</td> <td></td> </tr> <tr> <td>POLYNOMIAL DEGREE</td> <td>> 10</td> <td><</td> <td></td> </tr> <tr> <td>LENGTH OF INTERVAL</td> <td>> 1.0</td> <td><</td> <td>(hours)</td> </tr> </table> <p>Representation of Variational Equations:</p> <table border="0"> <tr> <td>POLYNOMIAL DEGREE</td> <td>> 12</td> <td><</td> <td></td> </tr> <tr> <td>LENGTH OF INTERVAL</td> <td>> 6.0</td> <td><</td> <td>(hours)</td> </tr> </table>		# OF ARCS	> 1	<		PRINT RESIDUALS	> NO	<	(NO, ALL Iterations, Iteration #)	ORBIT PREDICTION	> NO	<	(NO, # Days)	# OF ITERATIONS	> 2	<		POLYNOMIAL DEGREE	> 10	<		LENGTH OF INTERVAL	> 1.0	<	(hours)	POLYNOMIAL DEGREE	> 12	<		LENGTH OF INTERVAL	> 6.0	<	(hours)
# OF ARCS	> 1	<																															
PRINT RESIDUALS	> NO	<	(NO, ALL Iterations, Iteration #)																														
ORBIT PREDICTION	> NO	<	(NO, # Days)																														
# OF ITERATIONS	> 2	<																															
POLYNOMIAL DEGREE	> 10	<																															
LENGTH OF INTERVAL	> 1.0	<	(hours)																														
POLYNOMIAL DEGREE	> 12	<																															
LENGTH OF INTERVAL	> 6.0	<	(hours)																														

<pre> Earth Potential and Time Frame: MAX.DEGREE OF EARTH POTENTIAL > 8 < TIME FRAME OF TABULAR ORBITS > GPS < (GPS or UTC) APPLY ANTENNA OFFSET TO TAB POS > NO < (YES or NO) </pre>
--

3.3-1	GENERATE STANDARD ORBITS: INPUT	HELP
-------	---------------------------------	------

General Options:

OF ARCS:
 Selection of the number of arcs to be contained in the standard orbit file. Only possible when using tabular files as input.
 If you want to include the orbits of several days into one standard orbit file, you should set up one arc for each day.
 RECOMMENDED VALUE: 1

PRINT RESIDUALS:
 Select whether or not you want to print residuals into the output file. Printing is possible after each iteration step.
 Only possible when using tabular files as input.
 RECOMMENDED OPTION: NO

ORBIT PREDICTION:
 This option may be used to extend the arc length. When using tabular files the start and end times of the tabular orbits are used to define the start and end time of the resulting standard orbit.
 If a number is specified in this field the end time will be increased by this number of days. The effect is that the orbit will be predicted. When using an element file as input the orbit length will be set to 1-day because the element file does not contain arc-length information.
 RECOMMENDED OPTION: NO

Numerical Integration:

OF ITERATIONS:
 Selection of the number of iterations.
 Only possible if using tabular files as input.
 RECOMMENDED VALUE: 2

POLYNOMIAL DEGREE:
 Selection of polynomial degree to be used for the orbit representation.
 RECOMMENDED VALUE: 10

LENGTH OF INTERVAL:
 Selection of interval length to be used for one set of polynomial coefficients.
 RECOMMENDED VALUE: 1.0 (hours)

Representation of Variational Equations:

POLYNOMIAL DEGREE:
 Selection of polynomial degree to be used for the partial derivatives representation.
 RECOMMENDED VALUE: 12

LENGTH OF INTERVAL:
 Selection of interval length to be used for one set of polynomial coefficients.
 RECOMMENDED VALUE: 6.0 (hours)

Earth Potential and Time Frame:

MAX.DEGREE OF EARTH POTENTIAL:
 Selection of the degree of the Earth gravitational potential
 RECOMMENDED VALUE: 8
 ATTENTION: DO NOT CHANGE VALUES FOR THE SAME PROJECT !

TIME FRAME OF TABULAR ORBITS:
 Some older receivers used UTC as observation time. Nowadays every receiver uses GPS time. Therefore GPS should ALWAYS be selected here.

B. Option Panels and Help Panels

RECOMMENDED VALUE: GPS

APPLY ANTENNA OFFSET TO TAB POS:

Normally the orbit positions are given as center of mass positions. However, there are cases where the phase center of the satellite antenna is given.

Only in those, very rare, cases one should select "YES".

RECOMMENDED VALUE: NO

TS,GB

3.3-2

GENERATE STD.ORBITS: INPUT

Orbit Model Options:

PARTIAL DERIV. > ALLPAR < (NONPER, DYNALL, ALLPAR)

Parameter selection:

DO estimation (P0) > YES < (YES, NO)

YO estimation (P2) > YES < (YES, NO)

XO estimation > NO < (YES, NO)

Periodic Parameter selection:

Periodic D terms > NO < (YES, NO)

Periodic Y terms > NO < (YES, NO)

Periodic X terms > NO < (YES, NO)

3.3-2

GENERATE STANDARD ORBITS: INPUT

HELP

Orbit Model Options:

The selection made here is only necessary if tabular files are used as input. When using an element file this information will be taken from the element file itself.

PARTIAL DERIV.:

Selection of which partial derivatives should be set up during the orbit integration. Always select ALLPAR! The other options are for test purposes only.

RECOMMENDED VALUE: ALLPAR

Parameter selection:

Selection of the radiation pressure parameters which will be estimated to fit the tabular ephemerides (together with the osculating elements). The radiation pressure model is defined as follows:

$$D = DO + DC * \cos(U) + DS * \sin(U)$$

$$Y = YO + YC * \cos(U) + YS * \sin(U)$$

$$X = XO + XC * \cos(U) + XS * \sin(U)$$

"D" stands for the direct solar radiation pressure (direction sun-->sat), "Y" refers to the "y-bias" (direction of satellite's solar panel axis), "X" is an acceleration perpendicular to the "D" and "Y" directions.

The "classical" GPS orbit model only knows the DO and YO terms. GPS orbit accuracies have reached a level which made the use of a more elaborate radiation pressure model necessary. We recommend that only the constants DO and YO are estimated. However, if you are using precise (IGS) orbits and are NOT planning to improve orbits you want to obtain the best possible orbital fit of the tabular files. In this case we strongly recommend to use the full set of rpr parameters.

Parameter selection:

DO estimation (P0):
RECOMMENDED VALUE: YES

YO estimation (P2):
RECOMMENDED VALUE: YES

<p>XO estimation: RECOMMENDED VALUE: NO, for orbit improvement work, RECOMMENDED VALUE: YES, if orbits will NOT be improved</p> <p>Periodic Parameter selection: Periodic D terms: RECOMMENDED VALUE: NO, for orbit improvement work, RECOMMENDED VALUE: YES, if orbits will NOT be improved</p> <p>Periodic Y terms: RECOMMENDED VALUE: NO, for orbit improvement work, RECOMMENDED VALUE: YES, if orbits will NOT be improved</p> <p>Periodic X terms: RECOMMENDED VALUE: NO, for orbit improvement work, RECOMMENDED VALUE: YES, if orbits will NOT be improved</p> <p style="text-align: right;">TS,GB</p>

3.3-2.1	GENERATE STD.ORBITS: INPUT
<p>Selection of orbital elements: > NEW < (NEW or OLD)</p>	

3.3-2.1	GENERATE STANDARD ORBITS: INPUT	HELP
<p>Selection of orbital elements: The element file, which was generated either by program GPSEST or ADDNEQ contains two orbit sets, the "a priori" orbit used in the GPSEST or ADDNEQ parameter estimation programs, and the "improved" or "estimated" orbit sets as established by GPSEST or ADDNEQ. Here you select which of these two sets of elements you want to use. Normally you will use the improved elements! RECOMMENDED VALUE: NEW</p> <p style="text-align: right;">TS,GB</p>		

3.6	ORBITS: STANDARD ORBIT DIFFERENCES	
<p>CAMPAIGN > < (blank for selection list)</p> <p>Input Files: STANDARD ORBITS 1 > < (blank for selection list) STANDARD ORBITS 2 > < (blank for selection list)</p> <p>Output File: PLOT FILE > NO < (NO, if not to be saved)</p>		

3.6	ORBITS: STANDARD ORBIT DIFFERENCES	HELP
<p>General Remarks: This program compares two standard orbits in an interactive mode. It will list the differences in the radial, along and cross-track directions. If requested a plot file will be generated, too.</p> <p>Input Files: STANDARD ORBITS 1: Selection of the first standard orbit to be used in the comparison.</p>		

STANDARD ORBITS 2:
 Selection of the second standard orbit to be used in the comparison.

Output File:

PLOT FILE:
 Optional output file. Contains the same information as that given on the screen. The plot file may be used by the SAS graphics program tool.

RECOMMENDED VALUE: NO

TS,GB

3.7	ORBITS: CREATE PRECISE ORBITS
<p>CAMPAIGN > < (blank for selection list)</p> <p>Input File:</p> <p>STANDARD ORBITS > < (blank for selection list)</p> <p>ELEMENT FILE > < (NO, blank for selection list)</p> <p>SATELLITE CLOCKS > < (NO, blank for selection list)</p> <p>Output File:</p> <p>PRECISE EPHEM. > <</p>	

3.7	ORBITS: CREATE PRECISE ORBITS	HELP
<p>General Remarks: With this program you may transform the Bernese standard orbit files into the precise orbit format. You may use either the SP1 or SP3 format. Nowadays, the SP3 format is mostly used because it may contain satellite clock information. If you estimated/improved orbits and at the same time estimated earth orientation parameters you might want to use your own EOP values when running this program!</p> <p>Input File:</p> <p>STANDARD ORBITS: Selection of the input standard orbit file. If you estimated/improved orbits you have an element file available. You had to use this file in an orbit update step generating a new standard orbit (program ORBGEN). This is the standard orbit file you should use here.</p> <p>You may also wish to use this program to make sure that a colleague is using exactly the same orbit information as you do: You generate a precise file with one of your standard orbit files. If you give your colleague your ERP-series (used in this program as well), you are sure that he is using the same orbits as you.</p> <p>ELEMENT FILE: Selection of the input element file. Here you have to select the element file which you used to generate the selected standard orbit. This is only necessary if you want to have accuracy codes in the output precise file.</p> <p>RECOMMENDED VALUE: NO</p> <p>SATELLITE CLOCKS: Selection of the input satellite clocks. If you want to generate a precise file in the SP3 format including clock information you have to specify a satellite clock file here.</p> <p>RECOMMENDED VALUE: NO</p> <p>Output File:</p> <p>PRECISE EPHEM.: Selection of the name of the resulting precise output orbit file.</p>		

TS,GB

3.7-1	CREATE PRECISE ORBITS: INPUT
<p>Type of Precise Ephemerides File:</p> <p>FORMAT TYPE > SP3 < (SP1: Old format (pos) SP2: Old format (pos+vel) SP3: New format (pos))</p> <p>Time Window:</p> <p>yy mm dd hh mm ss yy mm dd hh mm ss</p> <p>FROM > 95 03 27 < > 00 00 00 < TO > 95 03 27 < > 23 45 00 <</p> <p>or</p> <p>SESSION > < YEAR > <</p> <p>Tabular Interval:</p> <p>TABULAR INTERVAL > 900 < sec</p>	

3.7-1	CREATE PRECISE ORBITS: INPUT	HELP
<p>Type of Precise Ephemerides File:</p> <p>FORMAT TYPE: Selection of the format for the output file. SP1 is the older format, SP3 the younger. The main difference between SP1 and SP3 is that satellite clock information may be included in the SP3 format. Moreover there are more digits for the satellite information. RECOMMENDED OPTION: SP3</p> <p>Time Window: The time window may be specified in two ways. Either using the classical "yymmdd hhhmss" format or a Bernese format using the session and the year. The precise file will NOT contain satellite positions for epochs outside the arc length of the standard orbit, however.</p> <p>Tabular Interval: TABULAR INTERVAL: The interval between subsequent satellite positions in the output file. Within the IGS the tabular interval was agreed to be 15 minutes (900 sec). RECOMMENDED VALUE: 900</p>		
		TS,GB

3.7-2	CREATE PRECISE ORBITS: OLD FORMAT TYPE
<p>Auxiliary Information:</p> <p>REFERENCE SYSTEM > 93 < (e.g. 72, 84, 90)</p> <p>AGENCY > <</p> <p>ORBIT TYPE > F < (F: for "fit" B: for "broadcast" E: for "extrapolated")</p>	

3.7-2	CREATE PRECISE ORBITS: OLD FORMAT TYPE	HELP
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B. Option Panels and Help Panels

<p>General Remarks: The options in this panel are only used if you decided to select the SP1 precise orbit format.</p> <p>Auxiliary Information:</p> <p>REFERENCE SYSTEM: Identification of the Terrestrial Reference Frame for the orbits. If you fixed stations on their e.g. ITRF'93 coordinates the reference frame of the orbits would be 93.</p> <p>AGENCY: Identification of the institute which created this precise file. For files created by the Astronomical Institute in Berne we use AIB.</p> <p>ORBIT TYPE: Identification of the orbit solution type.</p> <p style="text-align: right;">TS,GB</p>

3.7-3	CREATE PRECISE ORBITS: INPUT
<p>Auxiliary Information:</p> <p>TITLE 1 > < TITLE 2 > < TITLE 3 > < TITLE 4 > <</p> <p>REFERENCE SYSTEM > ITR93 < (e.g. ITR90, WGS84)</p> <p>AGENCY > <</p> <p>ORBIT TYPE > FIT <</p> <p>DATA DESCRIPTION > P < (P:Phase, C:Code, P&C:both)</p>	

3.7-3	CREATE PRECISE ORBITS: INPUT	HELP
<p>General Remarks: The options in this panel are only used if you decided to select the SP3 precise orbit format.</p> <p>Auxiliary Information:</p> <p>TITLE 1: TITLE 2: TITLE 3: TITLE 4: The SP3 format allows for 4 title lines.</p> <p>REFERENCE SYSTEM: Identification of the Terrestrial Reference Frame for the orbits. If you fixed e.g. stations on their ITRF'93 coordinates the reference frame of the orbits would be ITR93.</p> <p>AGENCY: Identification of the institute who created this precise file. For files created by the Astronomical Institute in Berne we use AIB.</p> <p>ORBIT TYPE: Identification of the orbit solution type using three characters. Some possibilities are e.g. FIT, PRD, BRC for orbital fit, orbit prediction, and broadcast orbit respectively. RECOMMENDED VALUE: NO</p> <p>DATA DESCRIPTION:</p>		

Identification of the observations used to generate the orbit.
 Only phase observations: P, Only code observations: C,
 both phase and code observations P&C

TS,GB

3.8	ORBITS: SATELLITE CLOCKS	
<p>CAMPAIGN > < (blank for selection list)</p> <p>Input File BROADCAST EPH. > < (blank for selection list)</p> <p>Output File SATELLITE CLOCKS > <</p>		

3.8	ORBITS: SATELLITE CLOCKS	HELP
<p>General Remarks:</p> <p>With this program you extract the satellite clock information from the broadcast orbit file. Normally you will not have to do this. CODSP is the only program which needs satellite clock information, but because CODSP may access the broadcast orbit file it automatically has access to the satellite clock informations. Only if you want to create a precise orbit file in the SP3 format including broadcast satellite clock information you will have to use this program.</p> <p>Input File BROADCAST EPH.: Selection of the input broadcast orbit file (Bernese format)</p> <p>Output File SATELLITE CLOCKS: Selection of the output satellite clock file</p> <p style="text-align: right;">TS,GB</p>		

3.8-1	SATELLITE CLOCKS: INPUT	
<p>TITLE > <</p> <p style="text-align: center;"> WINDOW START WINDOW END yy mm dd hh mm yy mm dd hh mm > < > < > < > < </p>		

3.8-1	SATELLITE CLOCKS: INPUT	HELP
<p>TITLE: Selection of a title to be used in the satellite clock output.</p> <p>TIME WINDOW: Selection of the start and end times for the satellite clock output.</p> <p style="text-align: right;">TS,GB</p>		

3.9.1	ORBITS: CREATE STD.ORBITS (NEW RPR MODEL)	
CAMPAIGN	>	< (blank for selection list)
Input File		
TABULAR ORBITS	>	< (blank for selection list)
RAD. PRESS. MODEL	>	< (NO, if no a priori file)
Output File		
STANDARD ORBITS	>	< (NO, if not to be saved)
RAD.PRESS. MODEL	>	< (NO, if not to be saved)
RESIDUALS	> NO	< (NO, if not to be saved)

3.9.1	ORBITS: CREATE STD.ORBITS (NEW RPR MODEL)	HELP
Input File		
<p>TABULAR ORBITS: Here you specify the tabular orbits containing the positions of the satellites in space-fixed reference frame. These positions are used as (pseudo-) observations for the computation of the standard orbits. The standard orbits are fitted through these positions using the least-squares method. In the standard orbit files the orbits are expressed using the equation of motion of the satellite and its initial conditions. The solution of this differential equation system is approximated by polynomials. The number of polynomials (the interval of the validity of one polynomial) and their degree are input options of this program. You may specify more than one tabular file.</p>		
<p>RAD. PRESS. MODEL: You may specify a file with the a priori values of the radiation pressure parameters. Usually no a priori values are necessary for this program. RECOMMENDED VALUE: NO</p>		
Output File		
<p>STANDARD ORBITS: Here you specify the file where the standard orbits (see above) will be stored. The standard orbits are necessary for further processing steps. RECOMMENDED VALUE: filename</p>		
<p>RAD.PRESS. MODEL: Here you specify the file where the radiation pressure parameters will be stored. If you are not going to improve the orbits using the GPS observations, you do not need this file RECOMMENDED VALUE: NO</p>		
<p>RESIDUALS: The residuals after the best fitting through the positions of the satellites from the tabular orbit files may be saved. Usually it is not necessary to look at these residuals. RECOMMENDED VALUE: NO</p>		
		LM

3.9.1-1	CREATE STD.ORBITS: INPUT (NEW RPR MODEL)	
General Options:		
# OF ARCS	> 1	<
# OF PARAMETERS	> 9	< (6 to 9)
PRINT RESIDUALS	> NO	< (NO, ALL Iterations, Iteration #)
ORBIT PREDICTION	> NO	< (NO, # Days)
Numerical Integration:		
# OF ITERATIONS	> 4	<
POLYNOMIAL DEGREE	> 10	<

```

LENGTH OF INTERVAL    > 1.0 <    (hours)

Earth Potential and Time Frame:
MAX.DEGREE OF EARTH POTENTIAL    > 12 <
TIME FRAME OF TABULAR ORBITS     > GPS <    (GPS or UTC)
APPLY ANTENNA OFFSET TO TAB POS  > NO  <    (YES or NO)
    
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3.9.1-1	CREATE STD.ORBITS: INPUT (NEW RPR MODEL)	HELP
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General Options:

OF ARCS:
Each standard orbit file may contain several arcs. Each arc is defined by other solution to the equations of motion of the satellites. Usually we use one standard orbit file for one session. The session is usually not longer than 24 hours. It has no sense to divide the orbit information into several arcs. Usually we use one arc.

OF PARAMETERS:
It is necessary to estimate at least 6 unknown parameters for each satellite and each arc. These six parameters are the initial conditions of the equation of motion. Up to 2 further unknown parameters for the radiation pressure model may be estimated. It is recommended to estimate at least 6+2=8 parameters.

PRINT RESIDUALS:
The residuals after the fit may be printed in the program output.
RECOMMENDED VALUE: NO

Numerical Integration:

OF ITERATIONS:
It is necessary to make an iteration over the fitting process. Usually already the second iteration gives sufficient accuracy.
RECOMMENDED VALUE: 3

POLYNOMIAL DEGREE:
Here you specify the degree of the polynomial function which approximate the solution of the equation of motion.
RECOMMENDED VALUE: 10

LENGTH OF INTERVAL:
The solution of the equation of motion is approximated by several polynomials. Each polynomial is valid within specified time interval. Here you specify the length of the interval.
RECOMMENDED VALUE: 1.0 hour

Earth Potential and Time Frame:

MAX.DEGREE OF EARTH POTENTIAL:
Here you specify the maximal degree of the development of the earth gravity potential into the series of spherical harmonics.
RECOMMENDED VALUE: 8

TIME FRAME OF TABULAR ORBITS:
Here you should specify either GPS or UTC according to the time frame you used in the tabular orbits (see menu 3.2). Usually GPS time is used.
RECOMMENDED VALUE: GPS

APPLY ANTENNA OFFSET TO TAB POS:
The positions of the satellites given by the tabular files are usually computed for the center of mass of the satellite. Some precise ephemerides (and therefore the tabular files created from these precise ephemerides) contain the positions of the satellite antenna phase center instead of the center of mass. In that case it is necessary to specify YES here.
RECOMMENDED VALUE: NO

LM

B. Option Panels and Help Panels

3.9.2	UPDATE STANDARD ORBITS (RPR MODEL 93)	
CAMPAIGN	>	< (blank for selection list)
Input Files:		
A PRIORI RPR MODEL	>	< (NO, if no a priori model)
ORBITAL ELEMENTS	>	< (blank for selection list)
Output Files:		
STANDARD ORBITS	>	<

3.9.2	UPDATE STANDARD ORBITS (RPR MODEL 93)	HELP
<p>General Remarks:</p> <p>With this and the following panel you select the processing options for the program UPD093. This program uses an input file containing the improved orbit parameters (see ORBITAL ELEMENTS below) and generates an output standard orbit. A priori values for the radiation pressure model may be read from an optional input file.</p> <p>Input Files:</p> <p>A PRIORI RPR MODEL: Here you select the a priori radiation pressure model. If you specify NO zero a priori values will be used.</p> <p>ORBITAL ELEMENTS: Here you specify the name of file which contains the orbital elements. This file is usually the result of the previous run of the program GPSEST (if you have estimated the orbits in GPSEST and stored the elements).</p> <p>Output Files:</p> <p>STANDARD ORBITS: The name of the output file has to be specified.</p> <p style="text-align: right;">LM</p>		

3.9.2-1	UPDATE STANDARD ORBITS (RPR MODEL 93)	
Arc Start Date:	Arc End Date:	
yy mm dd	yy mm dd	hh mm ss
>	<	<
Earth Potential:		
MAX.DEGREE OF EARTH POTENTIAL	>	<
Numerical Integration:		
POLYNOMIAL DEGREE	>	<
LENGTH OF INTERVAL	>	< (hours)

3.9.2-1	UPDATE STANDARD ORBITS (RPR MODEL 93)	HELP
<p>Arc Start Date, Arc End Date: Here you have to specify the orbit arc. One arc is characterized by six initial conditions of the corresponding equation of motion (osculating elements) and by several parameters of the solar radiation pressure. Usually we do not use arcs longer than three days. One-day arcs are recommended.</p>		

Earth Potential:

MAX.DEGREE OF EARTH POTENTIAL:
 Here you specify the maximal degree of the development of the earth gravity potential into the series of spherical harmonics.
 RECOMMENDED VALUE: 8

Numerical Integration:

POLYNOMIAL DEGREE:
 Here you specify the degree of the polynomial function which approximate the solution of the equation of motion.
 RECOMMENDED VALUE: 10

LENGTH OF INTERVAL:
 The solution of the equation of motion is approximated by several polynomials. Each polynomial is valid within specified time interval. Here you specify the length of the interval.
 RECOMMENDED VALUE: 1.0 hour

LM

3.9.3	ORBITS IMPROVEMENT USING PRECISE FILES	
CAMPAIGN	>	< (blank for selection list)
Input File		
STANDARD ORBITS	>	< (blank for selection list)
PRECISE FILES	>	< (blank for selection list)
RAD. PRESS. MODEL	>	< (NO, if no a priori file)
Output File		
RAD. PRESS. MODEL	>	< (NO, if not to be saved)
OSCULATING ELEMENTS	>	< (NO, if not to be saved)
RESIDUALS	>	< (NO, if not to be saved)
SUMMARY FILE	>	< (NO, if not to be saved)

3.9.3	ORBITS IMPROVEMENT USING PRECISE FILES	HELP
General Remarks:		
<p>With this and the following panel you select the processing options for the program ORBIMP. This program uses the precise orbit files as input. The precise orbit files contain the positions of the satellites (usually in ITRF). ORBIMP transforms the positions into the celestial reference frame and fits an orbit arc through these positions. An orbit arc is defined by the equation of motion and its initial conditions. Forces acting on the satellite are known a priori with the exception of the solar radiation pressure which has to be modeled by several unknown parameters. These parameters and six initial conditions of the differential equation of motion has to be estimated using the least-squares method.</p>		
Input File		
STANDARD ORBITS: A standard orbit file is used as a priori information about the satellite orbit. This file has to cover the entire time interval used in precise orbit files.		
PRECISE FILES: Here you specify the precise orbit files which contain the positions of the satellites. These positions are used as (pseudo-) observations during the least-squares fitting. You may specify several precise orbit files. These files may or may not cover the same time interval.		
RAD. PRESS. MODEL: Here you select the a priori radiation pressure model. If you specify NO the zero values will be used.		

Output File

RAD. PRESS. MODEL:
Here you specify the name of file which contains the values of the solar radiation pressure parameters.

OSCULATING ELEMENTS:
Here you specify the name of file which contains the values of the osculating keplerian elements. These elements represent the initial conditions for the equation of motion.

RESIDUALS:
Here you have the possibility to save the residuals after the fitting of an orbit arc through the precise orbit files.

SUMMARY FILE:
If you specify a filename here, the program will write a short summary about its run. E.g. mean residuals for all satellites will be listed.

LM

3.9.3-1	ORBITS IMPROVEMENT USING PRECISE FILES
<p>TITLE > <</p> <p>USE FILE SPECIFIC WEIGHT FILES > NO < (YES or NO)</p> <p>USE FILE SPECIFIC POLE FILES > NO < (YES or NO)</p> <p>USE FILE SPECIFIC SATCRUX FILES > NO < (not yet implemented)</p>	

3.9.3-1	ORBITS IMPROVEMENT USING PRECISE FILES	HELP
<p>TITLE: This title will appear in program output files.</p> <p>USE FILE SPECIFIC WEIGHT FILES: The satellite positions in the precise orbit files represent the pseudo-observations for the least-squares adjustment. If you specify YES here the different weights for different precise files will be used. The weights will be read from files which have the same name as the corresponding precise file but different extension (the default extension for the weight files is .WGT)</p> <p>USE FILE SPECIFIC POLE FILES: In the first step the program ORBIMP transforms the satellite positions into the celestial reference frame. It is possible to transform each precise orbit file using different pole information. If you specify YES here the pole information will be read from the file with the same name as the corresponding precise file but different extension (the default extension is .ERP)</p> <p>USE FILE SPECIFIC SATCRUX FILES: This option has not been yet implemented.</p> <p style="text-align: right;">LM</p>		

3.9.4	COMPARISON OF THE OSCULATING ELEMENTS
<p>CAMPAIGN > < (blank for selection list)</p> <p>Input File(s) STANDARD ORBITS > < (blank for selection list)</p>	

3.9.4	COMPARISON OF THE OSCULATING ELEMENTS	HELP
<p>General Remarks:</p> <p>With this and the following panel you select the processing options for the program which compares the positions, velocities and osculating elements stemming from different standard orbit files. The program assumes that you specify two standard orbit files, each containing one orbit arc. The first arc covers the time interval <t1,t2> the second arc (from the second standard orbit file) covers the time interval <t3,t4>. The program compares the positions, velocities and osculating elements at time $(t2+t3)/2$ if $t1 \leq t3$ or $(t4+t1)/2$ if $t1 > t3$.</p> <p>Input File(s)</p> <p>STANDARD ORBITS: Here you should specify two standard orbit files.</p> <p style="text-align: right;">LM</p>		

3.9.4-1	COMPARISON OF THE OSCULATING ELEMENTS
<p>TITLE > <</p> <p>USE FILE SPECIFIC POLE FILES > NO < (YES or NO)</p>	

3.9.4-1	COMPARISON OF THE OSCULATING ELEMENTS	HELP
<p>TITLE: This title will appear in program output files.</p> <p>USE FILE SPECIFIC POLE FILES: > NO < (YES or NO)</p> <p>In the first step the program transforms the satellite positions into the terrestrial reference frame. It is possible to transform each standard orbit file using different pole information. If you specify YES here the pole information will be read from the file with the same name as the corresponding standard orbit file but different extension (the default extension is .ERP)</p> <p style="text-align: right;">LM</p>		

B.6 Option and Help Panels for Menu 4 (Processing)

4.1	PROCESSING: CODE CHECK		
<p style="text-align: center;">CAMPAIGN > < (blank for selection list)</p> <p>Input File:</p> <p style="text-align: center;">CODE > < (blank for selection list)</p>			

4.1	PROCESSING: CODE CHECK	HELP
<p>General Remarks:</p> <p>This program is used to check code zero-diff. observation files for outliers. Usually this program is executed before running the program CODSP (see menu 4.2).</p> <p>Input File:</p> <p>CODE:</p> <p>Selection of code zero-difference files. One or more files may be processed together (sequentially). The selected files may even stem from different sessions.</p> <p style="text-align: right;">MR</p>		

4.1-1	CODE CHECK: INPUT		
<p>Observation Flags:</p> <p>USE FLAGS IN FILES > NO < (YES or NO)</p> <p>SAVE FLAGS IN FILES > YES < (YES or NO)</p> <p>Polynomial Screening:</p> <p>PRINT EXTENDED INFO > NO < (YES or NO)</p> <p>POLYNOMIAL DEGREE > 2 < </p> <p>MAX. FIT INTERVAL > 3 < MIN</p> <p>Rms of Code Observation:</p> <p>RMS OF CODE OBS. > 20.000 < M</p>			

4.1-1	CODE CHECK: INPUT	HELP
<p>Observation Flags:</p> <p>USE FLAGS IN FILES:</p> <p>The code zero-difference observation files selected to be processed may already contain marked observations (e.g. marked by a previous run of this program or using menu 5.1). This input field defines the handling of these marked observations</p> <p>YES:</p> <p>The observations already marked in the observation files will be kept marked. They will not be checked any more.</p> <p>NO:</p> <p>All observations already marked will be reset before the checking, i.e. the observation file(s) will be processed as if no markings existed at all in the file(s).</p> <p>RECOMMENDED VALUE: NO</p> <p>SAVE FLAGS IN FILES:</p>		