Installation SNAPHU in Windows

SNAPHU is a tool for phase unwrapping of interferometric information. To use it as an executable file (*.exe) in Windows it has to be compiled first so all required drivers (*.dll) are installed correctly.

Requirements

- a. cygwin (http://www.cygwin.com)
- b. snaphu (http://www.stanford.edu/group/radar/softwareandlinks/sw/snaphu/)

Installation

- 1. Install cygwin (32 or 64 bit version¹).
 - a. Open the downloaded installer:

E Cygwin Setup		-		x				
	Cygwin Net Release Setup This setup program is used for the initial inst Cygwin environment as well as all subseque sure to remember where you saved it. The pages that follow will guide you through Please note that Cygwin consists of a large r packages spanning a wide variety of purpos instal a base set of packages by default. Y this program at any time in the future to add, upgrade packages as necessary.	t Release Setup Program in is used for the initial installation of the ent as well as all subsequent updates. Make where you saved it. Now will guide you through the installation. Cygwin consists of a large number of ng a wide variety of purposes. We only of packages by default. You can always run by time in the future to add, remove, or as as necessary.						
	Setup.exe version 2.874 (64 bit) Copyright 2000-2016 http://www.cygwin.com/							
	< Zurück We	eiter >	Abbre	chen				

b. Next

E Cygwin Setup - Choose Installation Type -	x
Choose A Download Source Choose whether to install or download from the internet, or install from files in a local directory.	
 Install from Internet (downloaded files will be kept for future re-use) Download Without Installing 	
O Install from Local Directory	
< Zurück Weiter > Abbrech	nen

c. Install from Internet > Next

¹ Open System by clicking the Start button The Start button > right-clicking on Computer > Properties. Under System, you can view the system type.

Cygwin Setup - Choose Installation Directory –		x
Select Root Install Directory Select the directory where you want to install Cygwin. Also choose a few installation parameters.	l	
Root Directory		
C:\cygwin64	Browse	
Install For		
All Users (RECOMMENDED)		
Cygwin will be available to all users of the system.		
O Just Me		
Cygwin will still be available to all users, but Desktop Icons, Cygwin Menu Entries, a Installer information are only available to the current user. Only select this if you lack Administrator privileges or if you have specific needs.	ınd importa k	ant
< Zurück Weiter >	Abbre	chen

d. Select an installation directory (at best leave as suggested) > All Users > Next

Cygwin Setup - Select Local Package Directory		x
Select Local Package Directory Select a directory where you want Setup to store the installation files it downloads. The directory will be created if it does not already exist.		
Local Package Directory		
C:\cygwin64	Browse	
<zurück weiter=""></zurück>	Abbree	chen

e. Select a directory for the installation files (at best leave as suggested) > Next

E Cygwin Setup	- Select Connec	tion Type			-		x
Select Your In Setup needs the appropria	ternet Connecti to know how you ate settings below.	i on want it to connec	t to the internet. Ch	loose		(
	 Direct Connecti Use Internet Ex 	ion plorer Proxy Settir	IOS				
	Use HTTP/FTF	P Proxy:	.30				
	Proxy Host						
	Port	80					
			< Zuruck	We	iter >	Abbre	chen

f. Direct Connection > Next

E Cygwin Setup	- Choose Download Site(s)		-		x
Choose A Dow Choose a site	nload Site e from this list, or add your own sites to	the list		l	Å
	Available Download Sites:				
	ftp://ftp.muug.ca http://tygwin.miror.rafal.ca ftp://miror.cpsc.ucalgay.ca http://miror.cpsc.ucalgay.ca ftp://miror.sclub.uwaterloo.ca http://mirors.neusoft.edu.cn http://twp.stud.hs-esslingen.de ftp:/ftp-stud.hs-esslingen.de http://ttp-stud.hs-esslingen.de http://ttp.stud.hs-esslingen.de http:/ttp.stud.hs-esslingen.				
User URL:			Add		
		< Zurück V	Veiter >	Abbre	chen

g. Chose a server in your proximity > Next

Search ma	ke	Clear			🔾 Кеер	p ● Curr ─ Exp View Catego	ory
Category	Current	New	Bin?	Src?	Size	Package	
	3.1.2-1	0 3.3.2 1	\times		766k	cmake-doc: Cross-platform makefile gene	erat
	3.1.2-1	0 3.3.2-1	\times		1,227k	cmake-gui: Cross-platform makefile gener	ratio
		🔿 Skip	n/a	nía	163k	extra-cmake-modules: Extra CMake Mod	ule
	1.9.6-2	() Keep	ηία		419k	gcc-tools-epoch1-automake: (gcc-specia	al) a
	1.11.6-1	Keep	n/a		589k	gcc-tools-epoch2-automake: (gcc-specia	al) a
	1.0.3-1	Keep	n/a		6k	gccmakedep: X Makefile dependency to	olf
		Skip	nja	n/a	34k	imake: X Imake legacy build system	
	4.1-1	04.2.1-1	\times		449k	make: The GNU version of the 'make' uti	ility
	105-1	Keen	nía		30k	makedepend: X Makefile dependency to	ol à
<		III					>

h. search for "make"> under Devel > select make: The GNU version of the ,make' utility

Search gco	-core	Clear			◯ Ke	ep
Category	Current	New	Bin?	Src?	Size	Package
🗆 AI 🚯 D	efault					
🗆 Deve	l 😯 Default					
		😯 Skip	n/a	nía	15,128k	cygwin32-gcc-core: GCC for Cygwin 32bit toc
		🔿 Skip	n/a	ηία	7,926k	djgpp-gcc-core: GCC for DJGPP toolchain (C
	4.9.2-3	0 5.3.0 5	\times		16,447k	gcc-core: GNU Compiler Collection (C, Open1
		Skip	n/a	nía	11,739k	mingw64-i686-gcc-core: GCC for Win64 toolc
		Skip	n/a	n/a	12,160k	mingw64-x86_64-gcc-core: GCC for Win64 tc
						-
<		Ш				>
, Hido oba	olete nackan					

i. search for "gcc-core"> under Devel > select gcc-core: GNU compiler Collection > Next

Cygwin Setup - Resolving Dependencies	-		x
Resolving Dependencies The following packages are required to satisfy dependencies.			E
adwaita-icon-theme (3.18.0-1) GNOME desktop icon theme Required by: libgtk2.0_0 dejavu-fonts (2.36-1) DejaVu font family Required by: libfontconfig1			
OpenGL DRI drivers Required by: libGL1, libEGL1		~	
۲		>	
Select required packages (RECOMMENDED)	iter >	Abbre	echen

j. required components and dependencies are listed here > Next

E 100% - Cygwin Setup	_		x
Progress This page displays the progress of the download or installation.		(
Uninstalling libgfortran3			
Progress: Total: Disk:			
< Zurúck We	eiter >	Abbre	chen

k. Data is downloaded, the installation is performed subsequently. This may take several minutes.

Cygwin Setup - Installation Status and Create Icons	_		x
Create Icons Tell setup if you want it to create a few icons for convenient access to the Cygwin environment.		1	
Create icon on Desktop			
Add icon to Start Menu			
Installation Status			
Installation Complete			
	a stellen	Abbra	chan
< Zuruck Perti	Jistellen	Abbre	chen

I. Shortcuts are generated > Finish.

2. Install SNAPHU

a. Unzip SN	APHU data	a to C:\Temp						
📙 🕑 📙 🖛 т	emp							
Datei Start	Freigeben	Ansicht						
An Schnellzugriff K anheften	opieren Einfüger	X Ausschneiden S Pfad kopieren Verknüpfung einfügen	Verschie nach	ben Kopieren • nach •	Löscher	Umbenennen	Neuer Ordne	Reues Eleme
	Zwischenab	lage		Orgar	nisieren			Neu
$\leftarrow \rightarrow \checkmark \uparrow$	→ Dieser PC	> OS (C:) > Temp						
Name				Änderungsda	itum	Тур	(Größe
💷 snaphu-v1.4.3	2.tar 2			25.02.2003 01 28.07.2016 14	:25 :34	tar Archive Dateiordner		640 KB

b. Open Cygwin terminal (from shortcut on your desktop)



c. Move to your user directory and create sub folders (man/man1) by typing

cd /usr/local/ mkdir man man/man1



d. Move to the unzipped folder by typing



e. Prepare the compiler by typing

make install



SNAPHU.exe was now created and can be found in snaphu-v1.4.2\bin.

To make use of it copy snaphu.exe to the directory where your unwrapped data is located **or** place it in a folder which is listed in your system's PATH variable² to be able to execute it from anywhere.

² http://www.computerhope.com/issues/ch000549.htm

Example

- a. The interferogram exported from SNAP is located in C:\Temp\export If snaphu.exe is not in your system's PATH variable: Copy it in there as well.
- b. Open the windows command terminal by holding the Shift key and right-clicking > Open Command Window Here

∐ 🗹 🔜 ≂ export		
Datei Start Freigeben Ansicht		
Vorschaufenster	Mittelgroße Symbole A Details T	
Bereiche Layout		
← → ▼ ↑ → Dieser PC > OS (C:) > Temp > export		
Name Änderungsdatum Typ	Größe	
□ coh_HH_11Feb2008_04Mar2008.snaphu.i 26.07.2016 14:10 ERDAS Hdr File □ coh_HH_11Feb2008_04Mar2008.snaphu.i 26.07.2016 14:10 Datenträgerimage □ Phase_HH_11Feb2008_04Mar2008.snaph 26.07.2016 14:10 ERDAS Hdr File □ Phase_HH_11Feb2008_04Mar2008.snaph 26.07.2016 14:10 ERDAS Hdr File □ Phase_HH_11Feb2008_04Mar2008.snaph 26.07.2016 14:10 Datenträgerimage □ snaphu.conf 26.07.2016 14:10 CONF-Datei □ snaphu.exe 28.07.2016 14:10 CONF-Datei □ UnwPhase_HH_11Feb2008_04Mar2008.sn 26.07.2016 14:10 ERDAS Hdr File □ UnwPhase_HH_11Feb2008_04Mar2008.sn 26.07.2016 14:10 ERDAS Hdr File □ UnwPhase_HH_11Feb2008_04Mar2008.sn 26.07.2016 14:10 ERDAS Hdr File ↓ Sortieren nach > > ↓ Sortieren nach > > ↓ Aktualisieren > > ∪rdner anpassen Einfügen > >	1 KB 10.000 KB 1 KB 2 KB 288 KB 1 KB	
Verschieben rückgängig machen Strg+Z Eingabeaufforderung hier öffnen		
Freigeben für > Neu > Eigenschaften		

c. Type snaphu and hit Enter. The help menu should be displayed.

C. S. Torry's exponent Secondary	~
<pre>snaphu v1.4.2 usage: snaphu loptions] infile linelength [options] most common options: </pre>	

d. The command to start the unwrapping is shown in the file snaphu.conf. Open it with a text editor.

```
C:\Temp\export\snaphu.conf - Notepad++
Datei Bearbeiten Suchen Ansicht Kodierung Sprachen Einstellungen Makro Ausführen TextFX Erweiterungen Fenster ?
 , 🛃 🗄 🕏 🖓 👌 🗶 ங ங 🗩 ⊂⊂ 🗰 🛬 🔍 🧠 ⊑ 🔤 1 🐺 🐺 🔊 💌 🗩 🖬 🙀 🗮 😹
😑 snaphu.conf 🗵
  1 # CONFIG FOR SNAPHU
  2 # -----
                     _____
  3 # Created by SNAP software on: 14:10:46 26/07/2016
  4
    #
    # Command to call snaphu:
  5
  6
    #
          snaphu -f snaphu.conf Phase_HH_11Feb2008_04Mar2008.snaphu.img 1600
  7 #
  10 # Unwrapping parameters #
 13 STATCOSILI
14 INITMETHOD M
TRUE
 13 STATCOSTMODE DEFO
                  MCF
 16
 17 #################
 18 # Input files #
 19 ################
 21 CORRFILE
                 coh_HH_11Feb2008_04Mar2008.snaphu.img
 23 ################
 24 # Output files #
 25 ###############
 26
                  UnwPhase HH 11Feb2008 04Mar2008.snaphu.img
 27 OUTFILE
```

e. Copy the highlighted line and enter it in your system's shell.

snaphu -f snaphu.conf Phase_HH_11Feb2008_04Mar2008.snaphu.img 1600

f. Hit enter to start the unwrapping.

C:\Temp\export>snaphu -f snaphu.conf Phase_HH_11Feb2008_04Mar2008.snaphu.img 1600 snaphu v1.4.2 27 parameters input from file snaphu.conf (84 lines total) Logging run-time parameters to file snaphu.log Creating temporary directory snaphu_tiles_22064 Unwrapping tile at row 0, column 0 {pid 19684}
27 parameters input from file snaphu.conf (84 lines total) Logging run-time parameters to file snaphu.log Creating temporary directory snaphu_tiles_22064 Unwrapping tile at row 0, column 0 (pid 19684)
Unwrapping tile at row 0, column 0 (pid 19684)
Unwrapping tile at row 0, column 1 (pid 8472) Unwrapping tile at row 0, column 2 (pid 21284)
Unwrapping tile at row 0, column 3 (pid 29060) Unwrapping tile at row 0, column 4 (pid 20104) Unwrapping tile at row 0, column 5 (pid 13584) Unwrapping tile at row 0, column 6 (pid 25600)
Unwrapping tile at row 0, column 5 (pid 23000) Unwrapping tile at row 0, column 8 (pid 28986) Unwrapping tile at row 0, column 8 (pid 28968) Unwranning tile at row 0, column 9 (pid 2496)
Unwrapping tile at row 1, column 0 (pid 2836) Unwrapping tile at row 1, column 1 (pid 7836) Unwrapping tile at row 1, column 2 (pid 14012)
Unwrapping tile at row 1, column 3 (pid 10584) Unwrapping tile at row 1, column 4 (pid 2100) Unwrapping tile at row 1, column 5 (pid 22552)
Unwrapping tile at row 1, column b (pid 28600) Unwrapping tile at row 1, column 7 (pid 2280) Unwrapping tile at row 1, column 8 (pid 18252) Unwrapping tile at row 1, column 9 (pid 18252)

g. After completion a new file UnwPhase_[...].snaphu.img was created. It can be opened in SNAP by selecting the corresponding *.hdr file. Use the menu > Radar > Interferometric > Unwrapping > Snaphu Import.

💶 snaphu.exe	28.07.2016 14:49	Anwendung	288 KB
📄 snaphu.log	28.07.2016 15:02	Textdokument	4 KB
UnwPhase_HH_11Feb2008_04Mar2008.snaphu.hdr	26.07.2016 14:10	ERDAS Hdr File	1 KB
UnwPhase_HH_11Feb2008_04Mar2008.snaphu.img	28.07.2016 15:02	Datenträgerimage	10.000 KB