“ ”

SHUD

2024-08-01

Contents

Chapter 1

“ ” ” ”

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1.1

1. “ ” ( )
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3.
4.
5.
6. PI

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1.
2. “ ” PI
3.

1.3

1.
2.
3. ( ) **AI** https://www.shud.xyz/book_lab/servers
4.

5.

Chapter 2

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3. 4 1
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     - –
     - –
     - –
5.

2.2

1. + PI shulele@lzb.ac.cn
2. 2024 2024 8 15
3. 2024 9 1
4. 30
5.

2.3

https://shud.xyz/openfund.docx

https://shud.xyz/CV_template.docx

Chapter 3

3.1

1.
2.
3. 4 1
4.
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     - –
     - –
     - –
     - –
     - –
5.

3.2

1. + PI shulele@lzb.ac.cn
2. 2024 2024 8 15
3. 2024 9 1
4. 30
5.

3.3

https://shud.xyz/openfund.docx

https://shud.xyz/CV_template.docx

Chapter 4

4.1

1. 1000
2.
3.
4.
5. 5000

4.2

“ ”

	60%	12000
		16000
	50%	5000
/	20%	2000
	100%	5000
		40000

Chapter 5

5.1

1.
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    1.
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5.2

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Chapter 6

-
- SHUD

- **R**
- **D**

6.1

PI

6.2

6.2.1

6.2.1.1 R1. Rum River

Rum River 4000

1. 1979-2023 NLDAS SHUD Rum River
2.
3. Rum River
4. LSTM GraphNET

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2. NWIS
3. ( )

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6.2.1.2 R2.

SHUD

1. SHUD
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6.2.1.3 R3. SHUD

SHUD

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4.

1. SHUD
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1. R Python
2. C/C++ debug

6.2.1.4 R4. -

SHUD

1. SHUD 2. 3.

1. SHUD
2.

3.

6.2.1.5 R5. SHUD

“ ”

1. SHUD
2. SHUD
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1. R Python
2. C/C++ debug
3.
4.

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Tikal

1. 700-1200 Tikal
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2.
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6.2.1.8 R8. SHUD

1.
2. (mesh independance)?

6.2.1.9 R9.

6.2.1.10 R10. GOF

(GOF goodness of fitting) GOF

1.
2. R Python

6.2.1.11 R11.

1.

6.2.1.12 R12.

" - " ParFlow, PIHM/SHUD, OpenGeoSphere, HydroGeoSphere, imHM, tRIBS, MIKE-SHE, CATHY, PAWS

6.2.1.13 R13. SHUD

AutoSHUD SHUD

100 500 1000 SHUD

6.2.2

6.2.2.1 D1. SHUD NetCDF

SHUD NetCDF

SHUD NetCDF SHUD

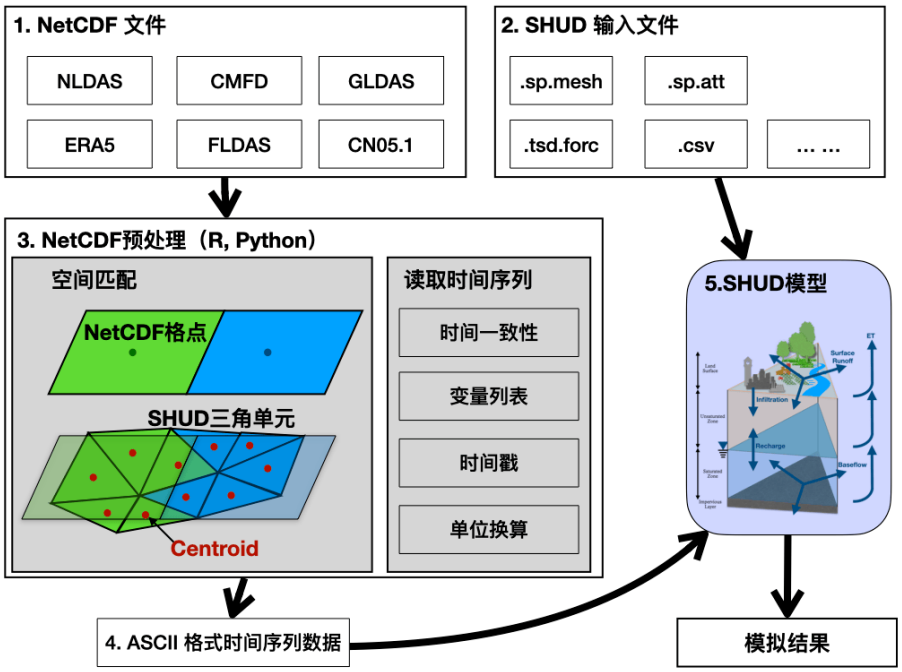

Figure 6.1: NetCDF_module.003

1. C/C++
2. NetCDF
3. GIS

6.2.2.2 D2.

https://nwm.ac.cn

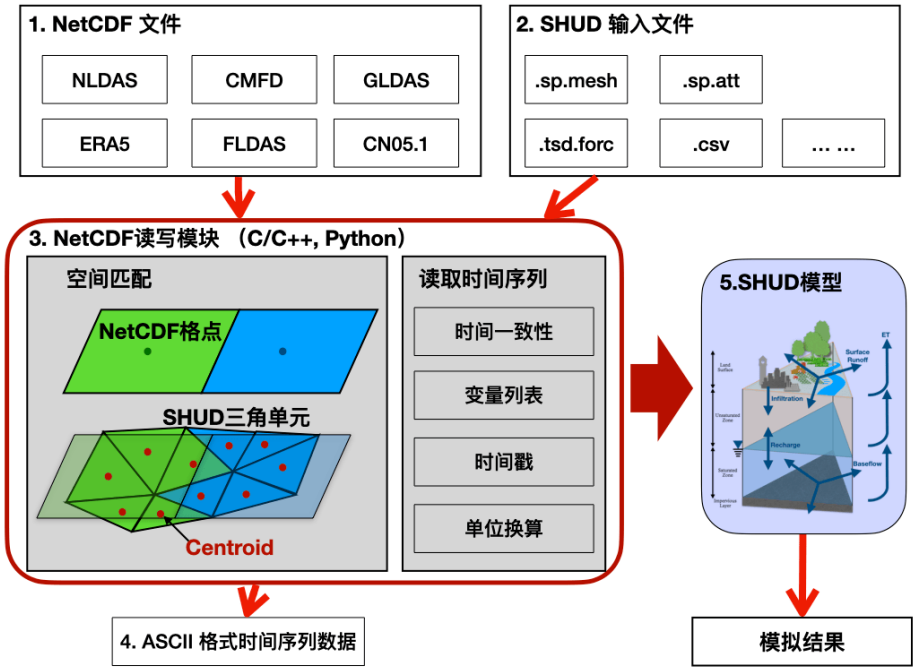

Figure 6.2: NetCDF_module.002

1. Shapefile
2.
3.
4. SHUD

1. GIS
2.

* **GIS**

6.2.2.3 D2.

GHDC(https://ghdc.ac.cn) SHUD SWAT, TOPMODEL,

1. Python, R
2.

6.2.2.4 D3. API

GHDC(https://ghdc.ac.cn)

GHDC API API

1. Python
2. R
3.

*

6.2.2.5 D4. CMA-ES

R doParall doMC R doMC —— ” “

R Python

1.
2. R Python

6.2.2.6 D5. SHUD OpenMP

SHUD OpenMP shud-omp shud shud-omp shud-omp

1.
2. C/C++

Chapter 7

- SHUD https://www.shud.xyz/book_lab/ , PDF , ePub .
- R https://www.shud.xyz/bookr/ R R R
- SHUD https://www.shud.xyz/Book_CN/
- SHUD https://shudapp.netlify.app
- SHUD https://github.com/SHUD-System/SHUD
- (GHDC) https://ghdc.ac.cn/ https://www.shud.xyz/ghdc_cn/ Bilibili Bilibili “ (GHDC)”
- (NWM) https://nwm.ac.cn

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