



cut & sew your GPS tracks

Tin Tvrtković - Federico Ciccozzi





What is

DSD GPXCleaner

?

Distributed Software Development



SCORE

Difficulties in Report writing

Main concern as Requirement Engineering. We read 5 different articles, books and paper to understand what actually Requirement Engineering is. ☹

- No native English speaker in group!!
- Making a rough draft and what to put in it and what is not required
- Different writers, thinking, writing and structure style difference; rephrasing
- Duplicate and repeated sentences, trimming them down; long sentences
- Feedback and comments from two supervisors sometime confusing
- Impelmentation and report at the same time; concentration

Fill that Report is actually another English skills course or project in itself.
End up with two projects in fact. ☹






Tin Tvrtković
 -Project Leader
 - Coding
 - Documentation Management
 - Communication Management
 - Final Presentation




Josip Labor
 -Algorithm design and implementation




Tihomir Bregović
 -Documentation Management
 - Coding





Pablo Santibañez-Jara
 -Swedish Side Leader
 - GUI design and implementation




Federico Ciccozzi
 - Coding
 - Documentation
 - Final Presentation




Jenny Jutterström
 - GUI design and implementation
 - Documentation




Coen Tempelaars
 -Algorithm design and implementation

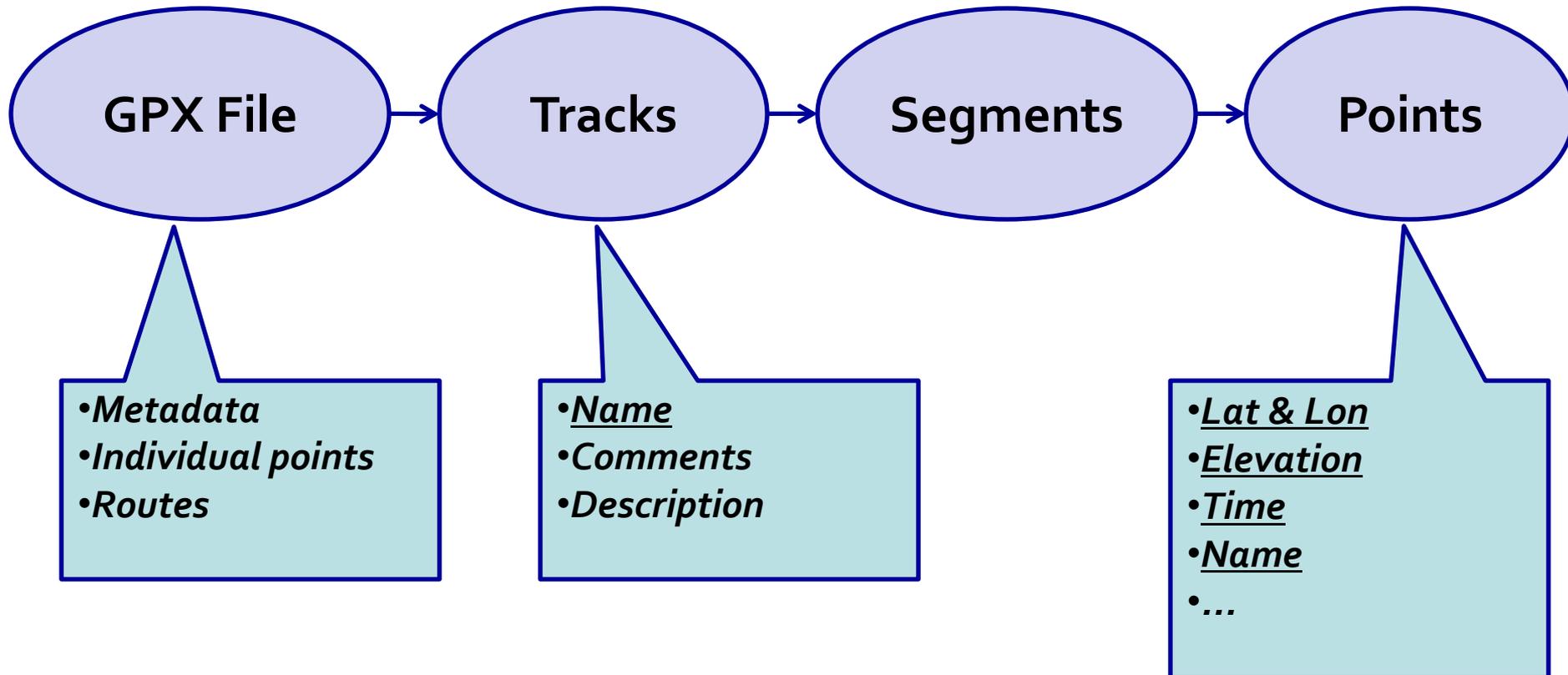


What is

DSD GPX Cleaner

?







5000 m

What is

DSD GPX Cleaner

?



20 m

Map

Altitude 3 km Lat 37,9292° Lon -119,4636° Elev 1.934 meters Downloading

Point Reduction Settings

Points Analyze segment

Maximum Deviation: 0 m

Map

Altitude 3 km Lat 37,9309° Lon -119,4619° Elev 2.000 meters Downloading

Point Reduction Settings

Points

Maximum Deviation: 1.0 m

Map

Altitude 3 km Lat 37,9278° Lon -119,4634° Elev 1.972 meters Downloading

Point Reduction Settings

Points

Maximum Deviation: 4.0 m

Map

Altitude 3 km Lat 37,9290° Lon -119,4635° Elev 1.944 meters Downloading

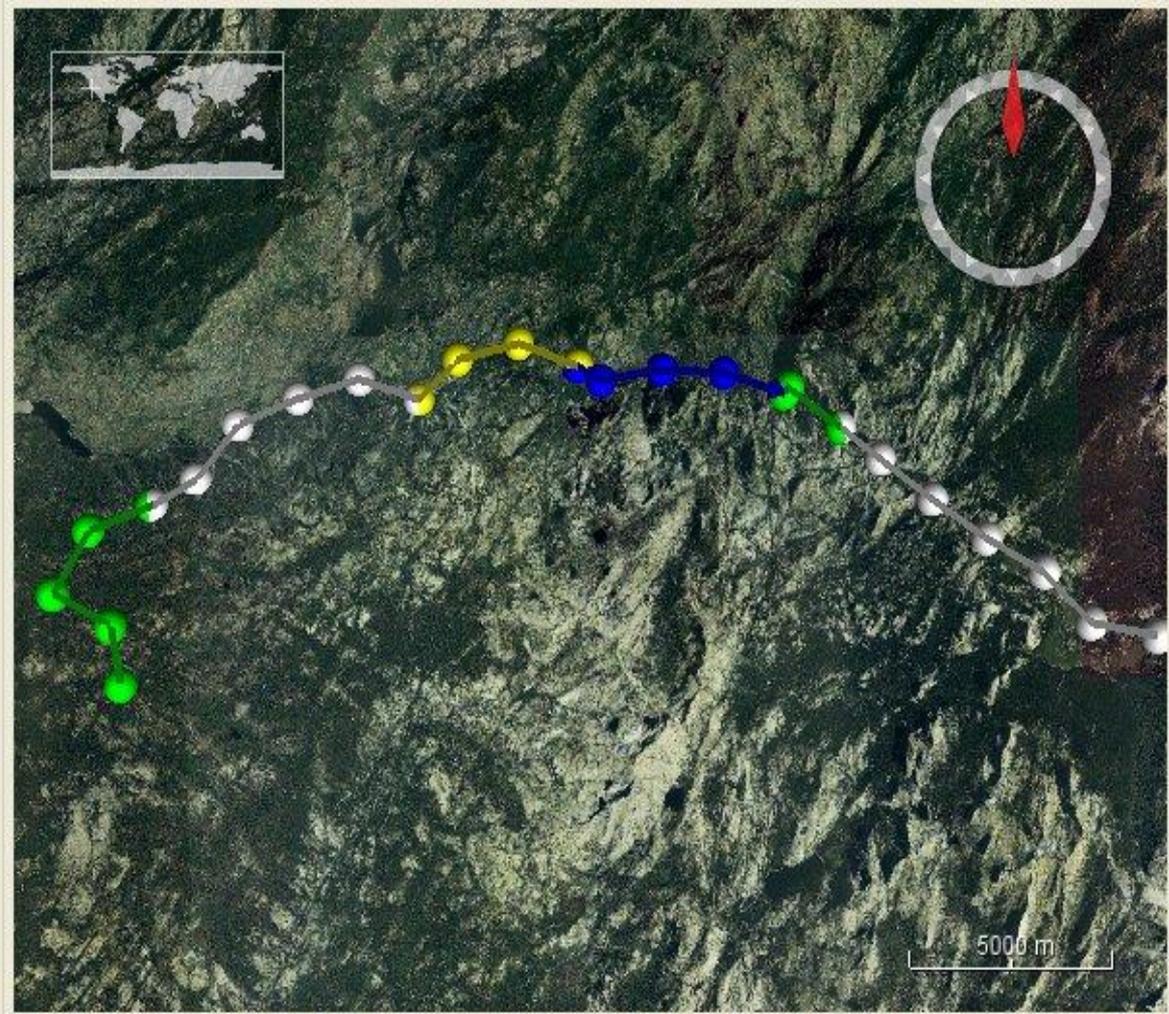
Point Reduction Settings

Points

Maximum Deviation: 78.0 m

Zoom

Map



Altitude 37 km Lat 37,9027° Lon -119,6769° Elev 2.154 meters

Track Information

ACTIVE LOG 023

Start: 2007.06.11 19:33:23

End: 2007.06.14 22:39:21

Number of Points: 5249

Length: 55059 m

Rename Track

Remove Tracks

Segment Information

- Segment #0
- Segment #1
- Segment #2
- Segment #3
- Segment #4
- Segment #5

Start:

End:

Number of Points:

Length:

Split Segment

Remove Segment

Point Reduction Settings



Points

Analyze segment

Maximum Deviation:



File Window

Point Information

- First Point ▲
- 19:33:28
- 19:33:31
- 19:33:34
- 19:33:36
- 19:33:37
- 19:33:41
- 19:33:45
- 19:33:49
- 19:33:50
- 19:33:55
- 19:33:56

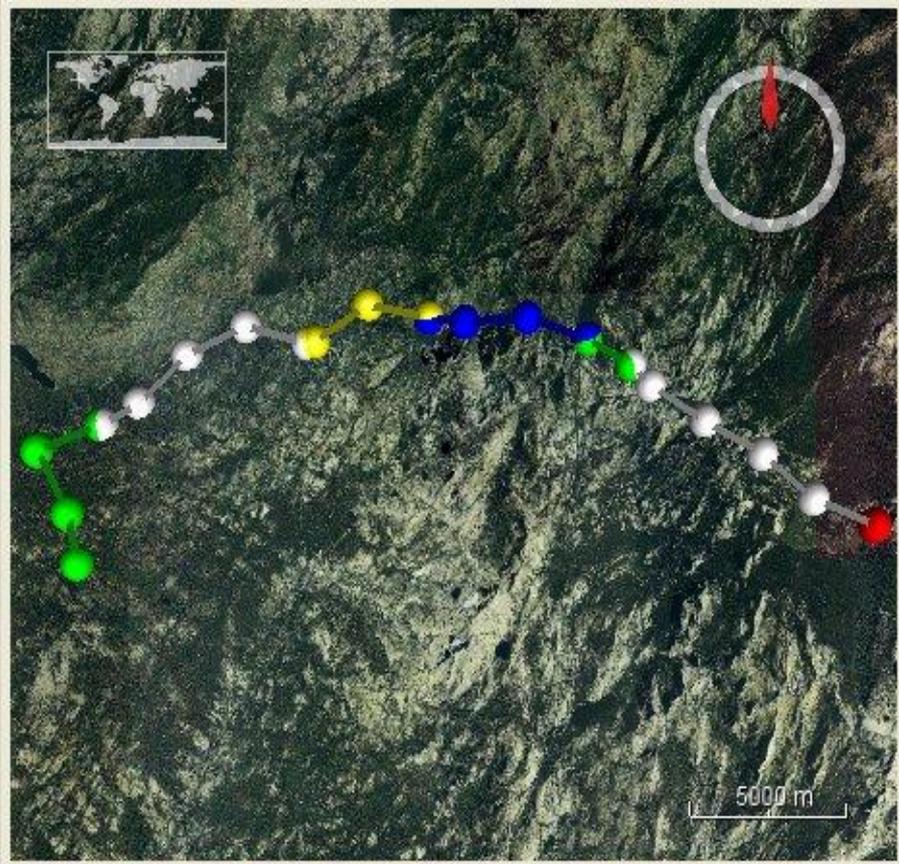
⇒ Ⓞ ⇐ ▲ ▼

Date: 2007.06.11
 Time: 19:33:23
 Long: 19.3578698
 Lat: 37.8799653

- Move Point
- Rename Point
- Export Points
- Delete Points
- Insert Point
- Split Segment
- Split Track

Zoom Map

Zoom slider: []



Altitude 37 km Lat 37,9598° Lon -119,6694° Elev 1.984 met...

Point Reduction Settings

Slider: [] Points [] Calculate points
 Remove wild points

Map Information

Show lines Show background Center Selected Point Hide Markers

Track Information

ACTIVE LOG 023

Start: 2007.06.11 19:33:23
 End: 2007.06.14 22:39:21
 Number of Points: 5249
 Length: 55059 m

Preview Track
 Rename Track
 New Track
 Remove Tracks
 Combine Tracks

⇒ Ⓞ ⇐ ▲ ▼

Segment Information

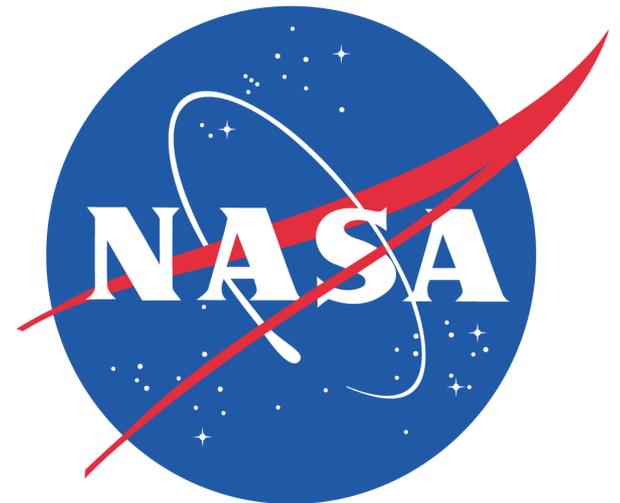
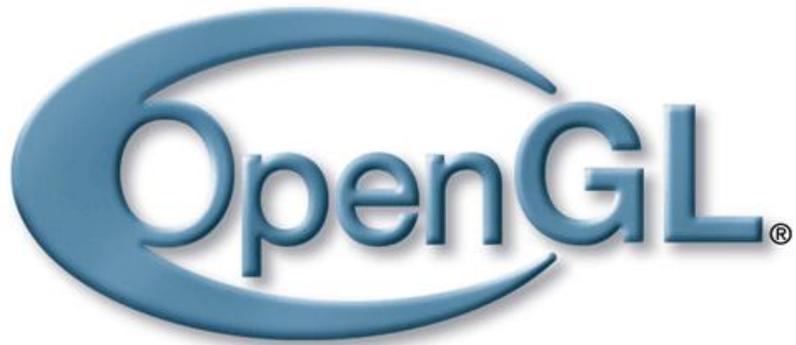
Segment #0 Start: 2007.06.11 19:33:23
 Segment #1 End: 2007.06.12 21:14:27
 Segment #2
 Segment #3 Number of Points: 1412
 Segment #4 Length: 14412 m
 Segment #5

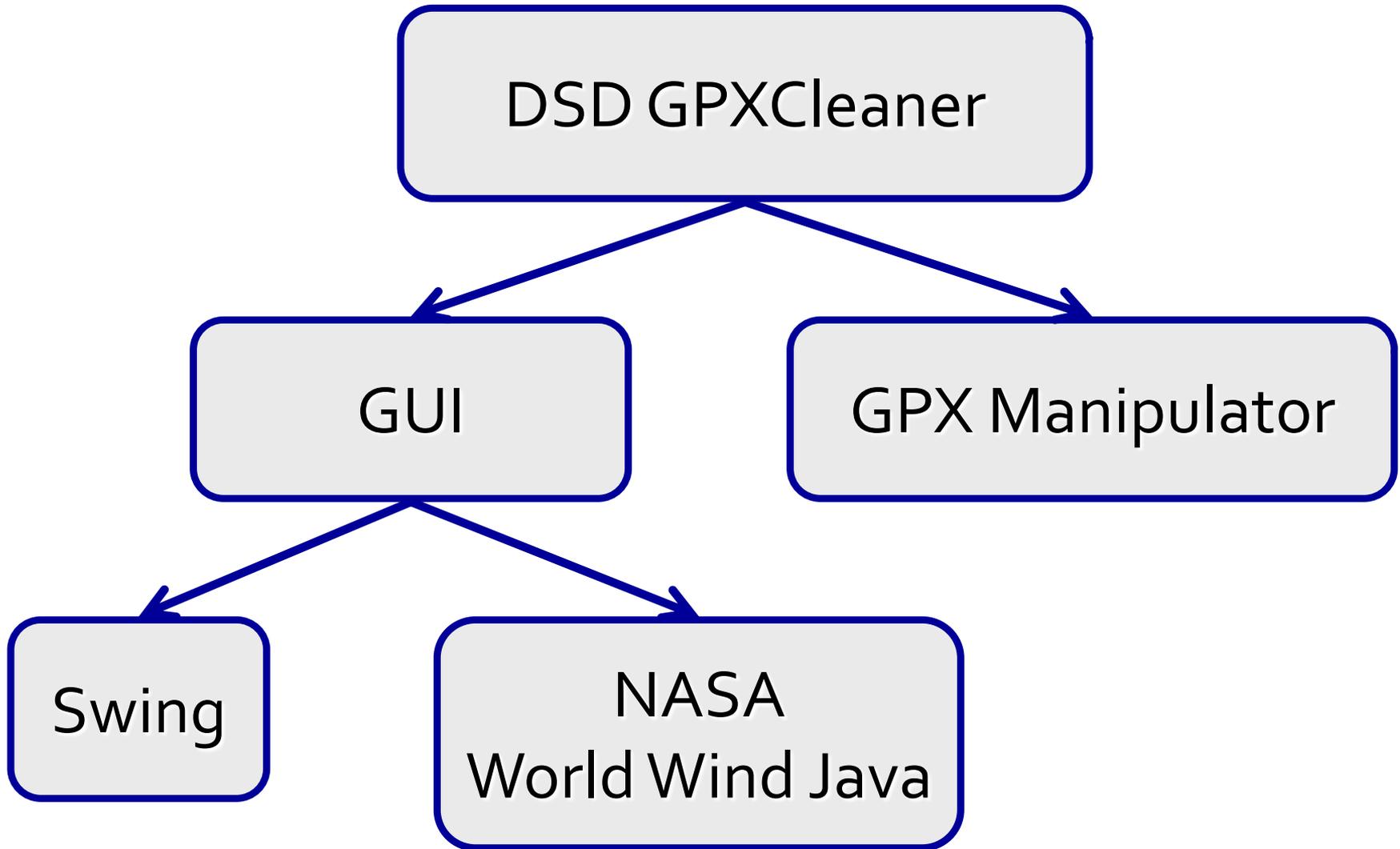
Show Segment
 Export Segment
 Split Track
 Remove Segment
 Combine Segments
 New Segment

⇒ Ⓞ ⇐ ▲ ▼



Technology

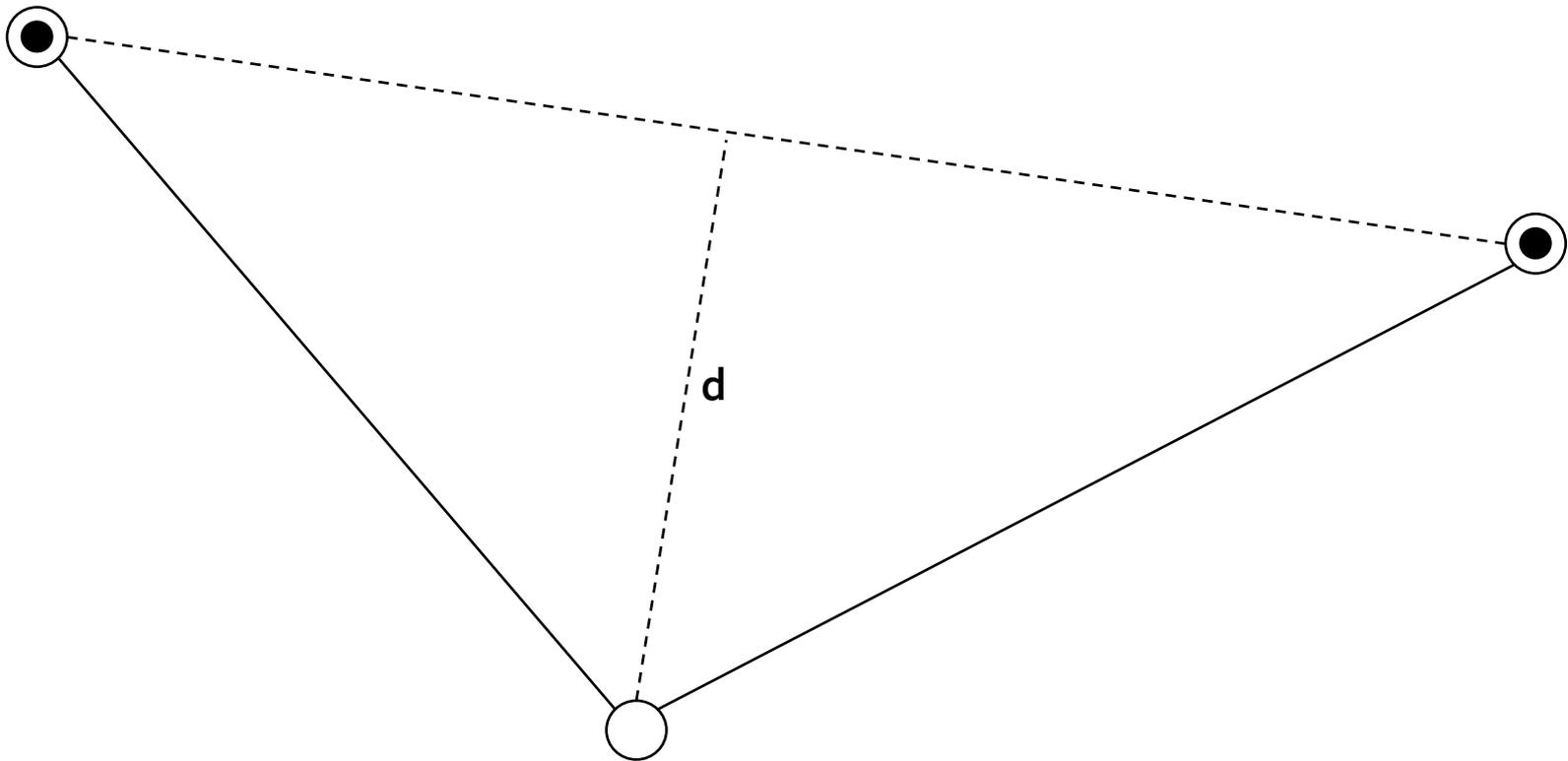




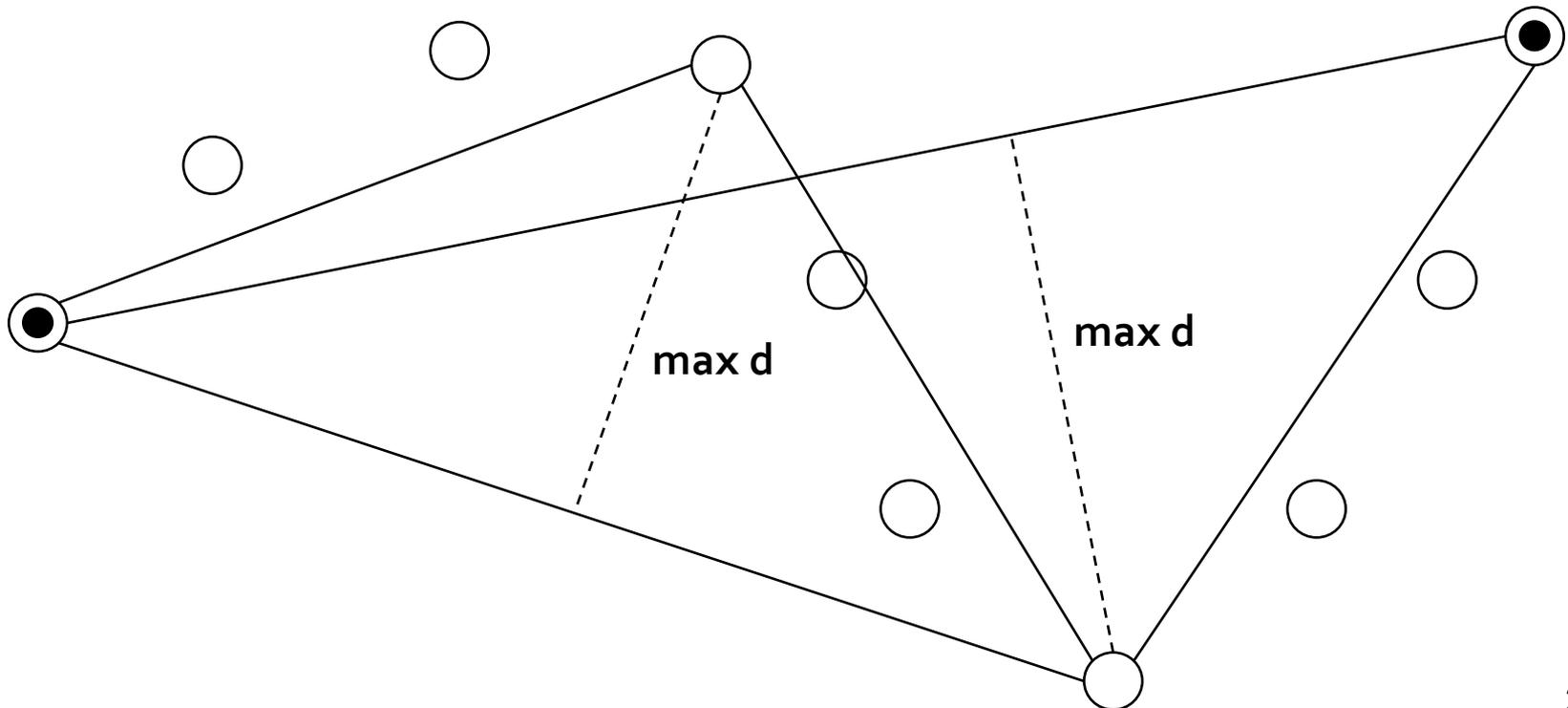
GPX Manipulator

- Loading and saving of GPX data
- Path reduction
- GPX datetime parsing
- Wild point detection
- Segment length calculation

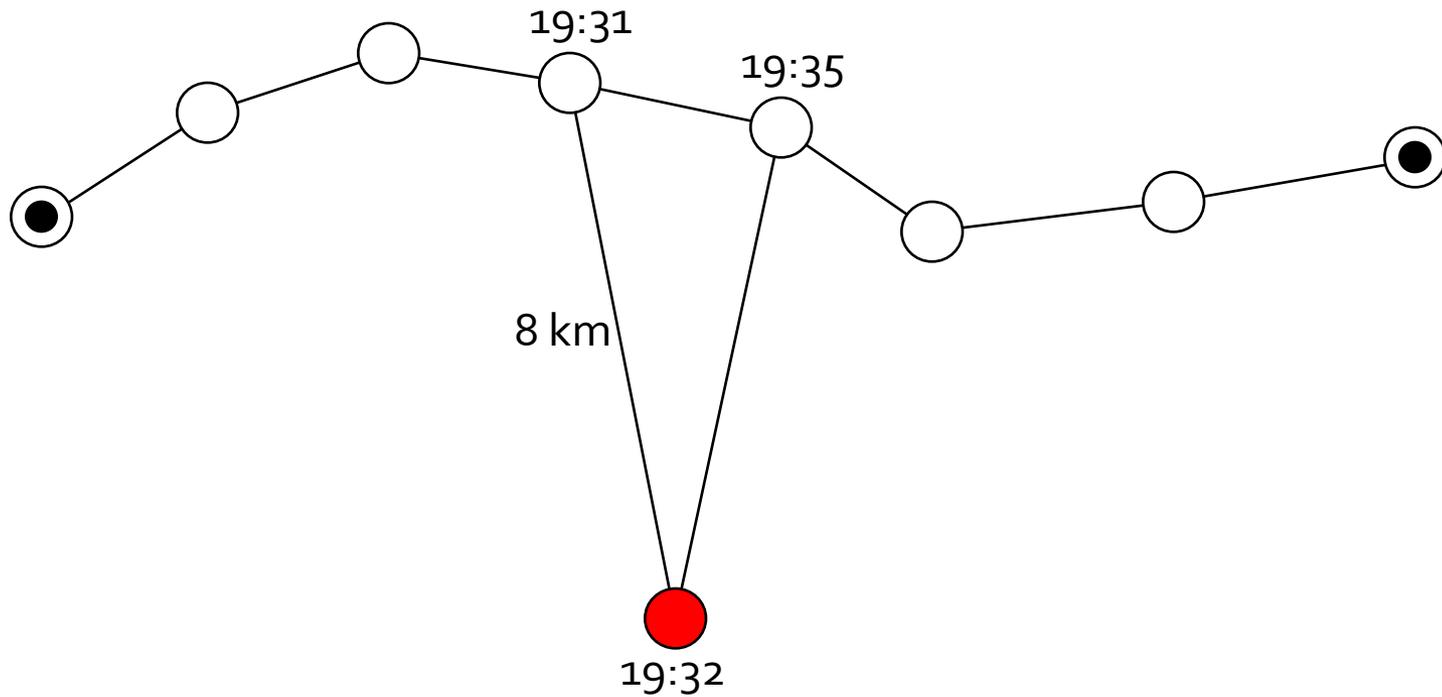
Local Approach



Global Approach

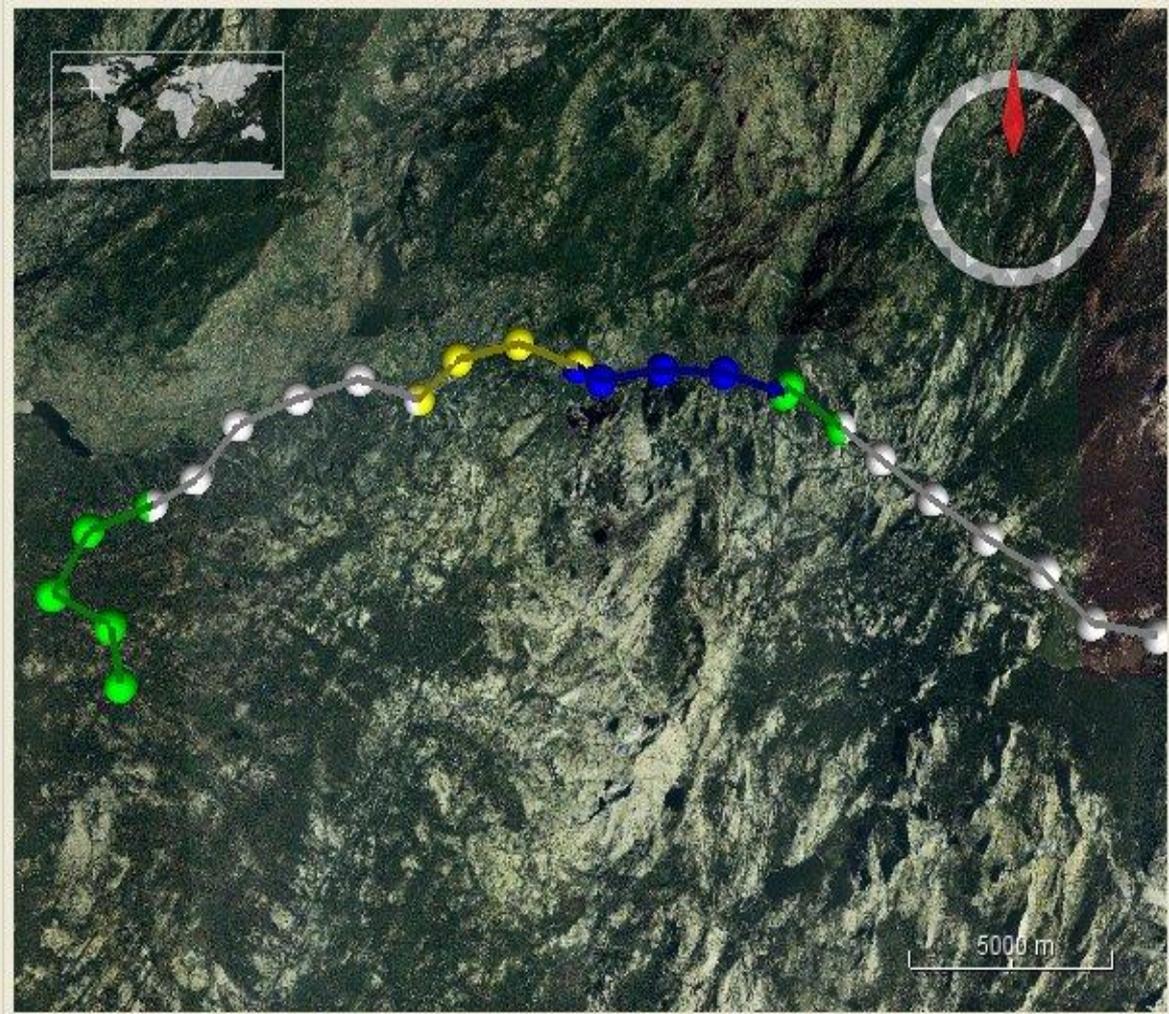


Wild Point Reduction



Zoom

Map



Altitude 37 km Lat 37,9027° Lon -119,6769° Elev 2.154 meters

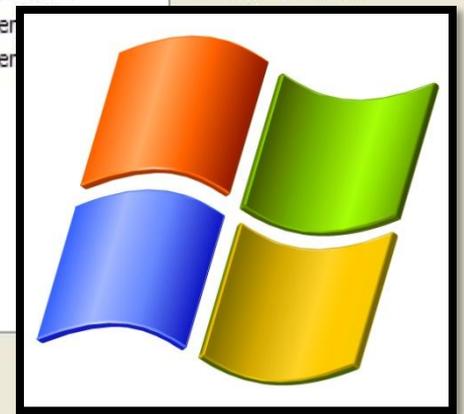
Track Information

ACTIVE LOG 023

Start: 2007.06.11 19:33:23
 End: 2007.06.14 22:39:21
 Number of Points: 5249
 Length: 55059 m

Segment Information

Segment #0 Start:
 Segment #1 End:
 Segment #2
 Segment #3 Number of Points:
 Segment
 Segment



Point Reduction Settings

Points

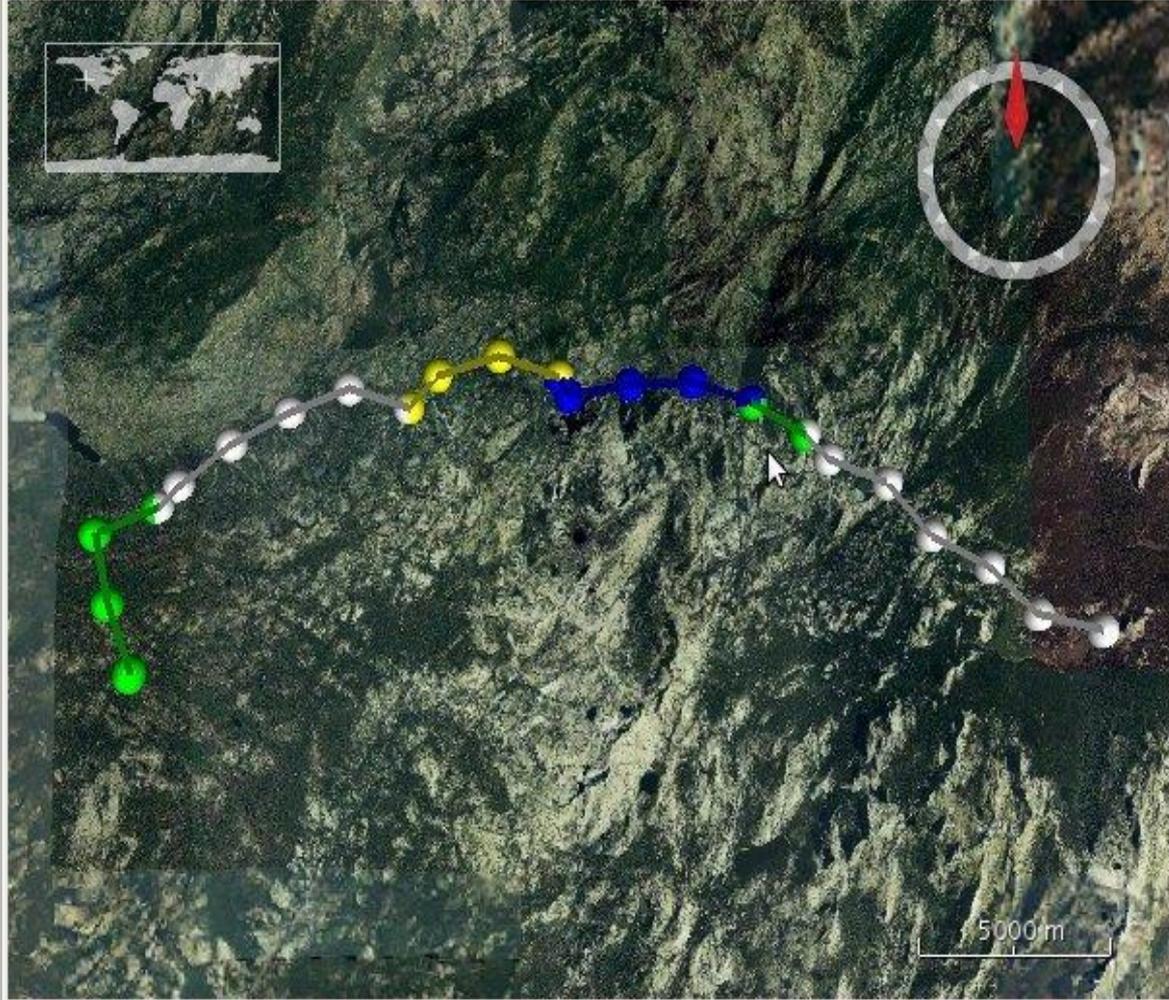
Maximum Deviation:



Zoom

681%

Map



Altitude 40 km Lat 37.9179° Lon -119.4573° Elev 2,258 met... Downloading

Point Reduction Settings

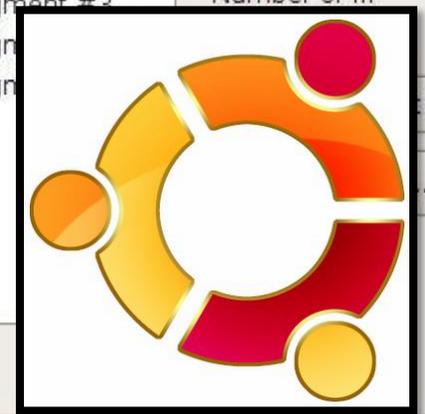
Maximum De... Point

Track Information

ACTIVE LOG 023 St... Jun 11, 2007 7:
 End: 07 10:39:21 PM
 Number of ... 5249
 Len... 55059 m

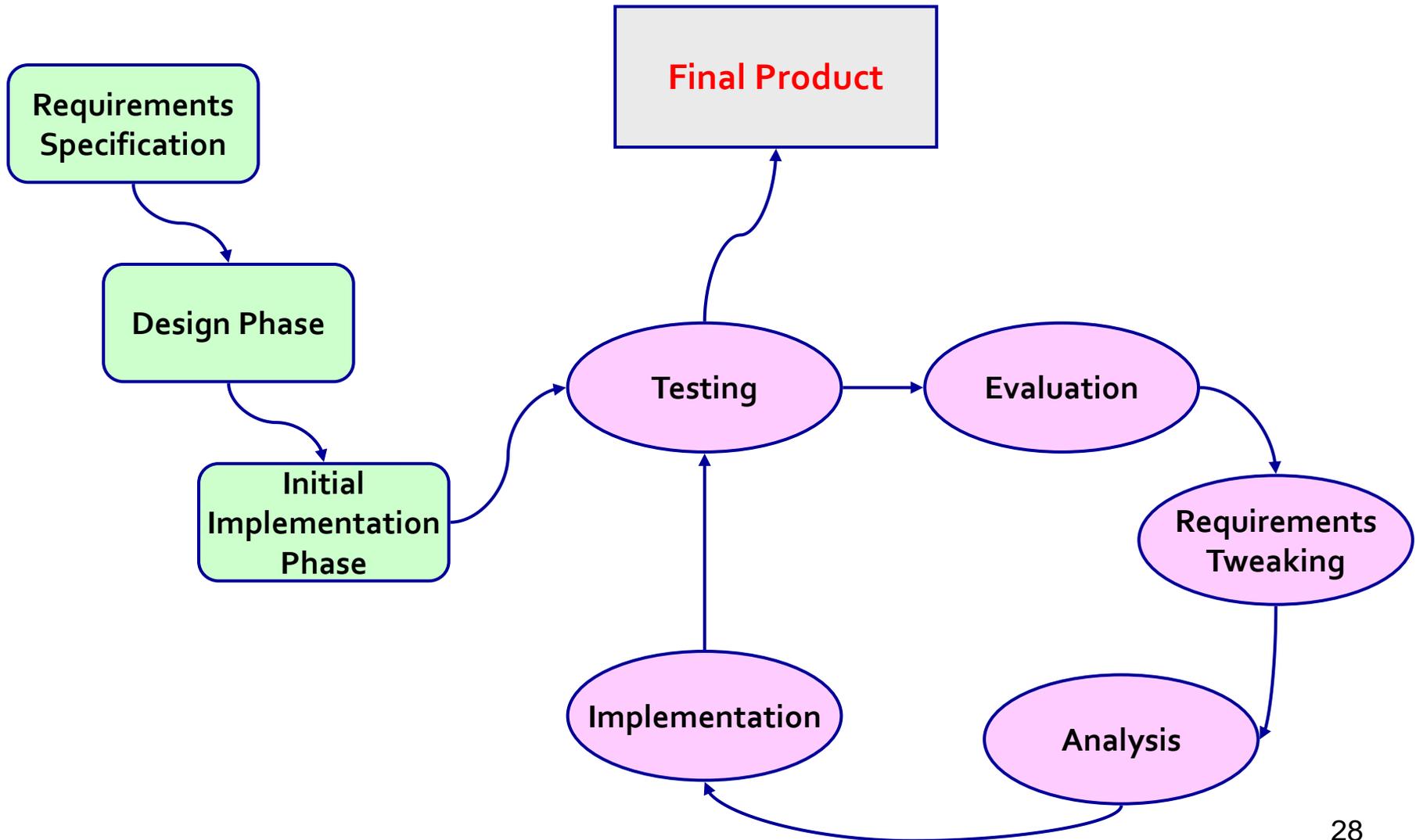
Segment Information

Segment #0 St...
 Segment #1 End:
 Segment #2 Number of ...
 Segment #3
 Segment #4





Development Process



Activity	w01	w02	w03	w04	w05	w06	w07	w08	w09	w10	w11	w12	w13
Requirements definition	Development	Development	Development	Tweaking	Tweaking	Tweaking	Tweaking						
Team definition and managing	Development	Development											
Design description		Development	Development										
GPX input and output			Development	Development							Tweaking		
Expert mode GUI			Development	Development	Development	Development	Development		Tweaking	Tweaking	Tweaking		
Simple mode GUI							Development		Development	Development	Development		
Embedded map			Development	Development	Development	Development	Development		Tweaking	Tweaking	Tweaking		
Reduction algorithms			Development	Development	Development	Development	Development						
Time parsing							Development		Tweaking				
Wild point detection							Development		Development	Tweaking	Tweaking		
Integration				Development	Development	Development	Development		Development	Development	Development		
Testing					Development	Development	Development		Development	Development	Development		
Documentation				Development	Development	Development	Development		Development	Development	Development	Development	
Final delivery													Development

= Development
 = Tweaking

Communication Challenges





Team

Supervisors

Customer





Team

Supervisors

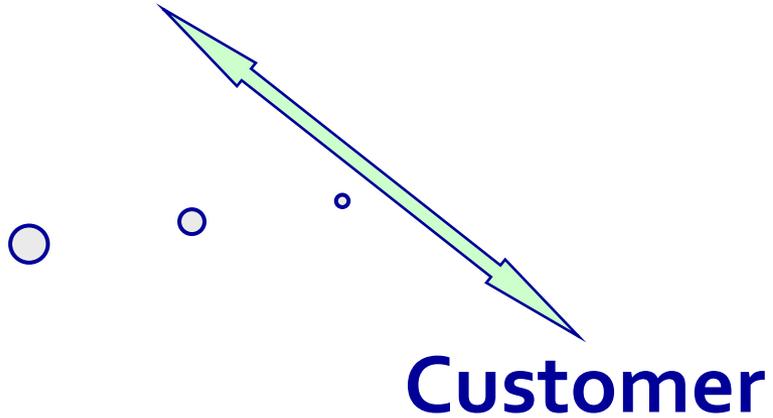
- Teleconferencing
- E-mail
- Web pages





Team

- E-mail
- Deliverables





Team



- Skype
- Google Groups
- Instant Messaging (MSN)
- SVN repository

We Would Like To Thank...

- Course Professors: **Ivica Crnković, Mario Žagar**
- Supervisors: **Ivana Bosnić, Ana Petričić, Rikard Land**
- Score Customer: **Michal Young**
- **ICSE & SCORE supporting teams**

Thanks for Your attention

