



ECOLE DES MINES DE PARIS

Centre de Robotique

Localisation for Mobile Mapping Systems, Experimental results and analysis on rural and urban environments

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Presentation Schema

Introduction - Context

Experimental Data and Analysis

Proposed Improvement by Post-Processing

Conclusion



Examples of Mobile Mapping Systems (MMS)

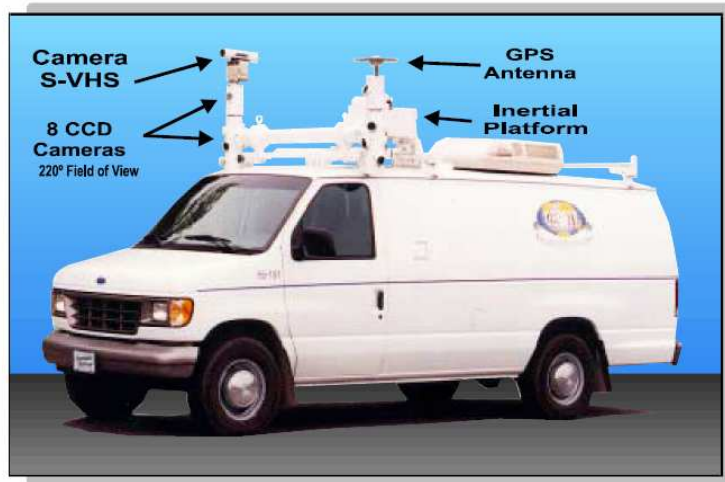


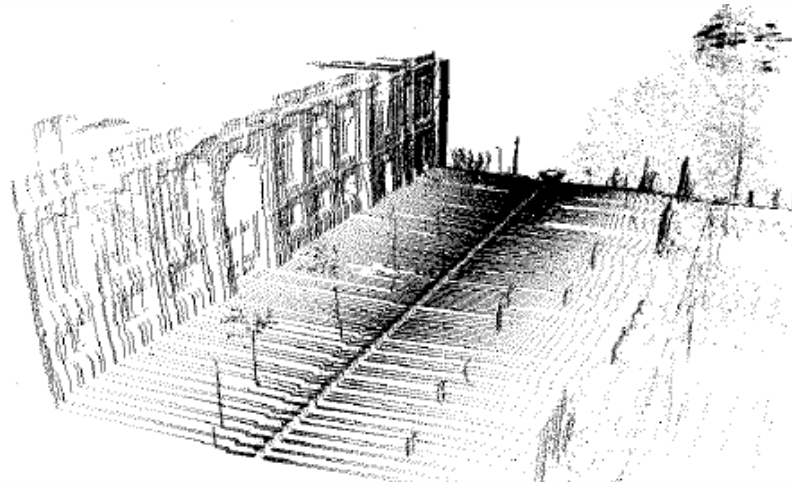
Figure : The VISAT Van



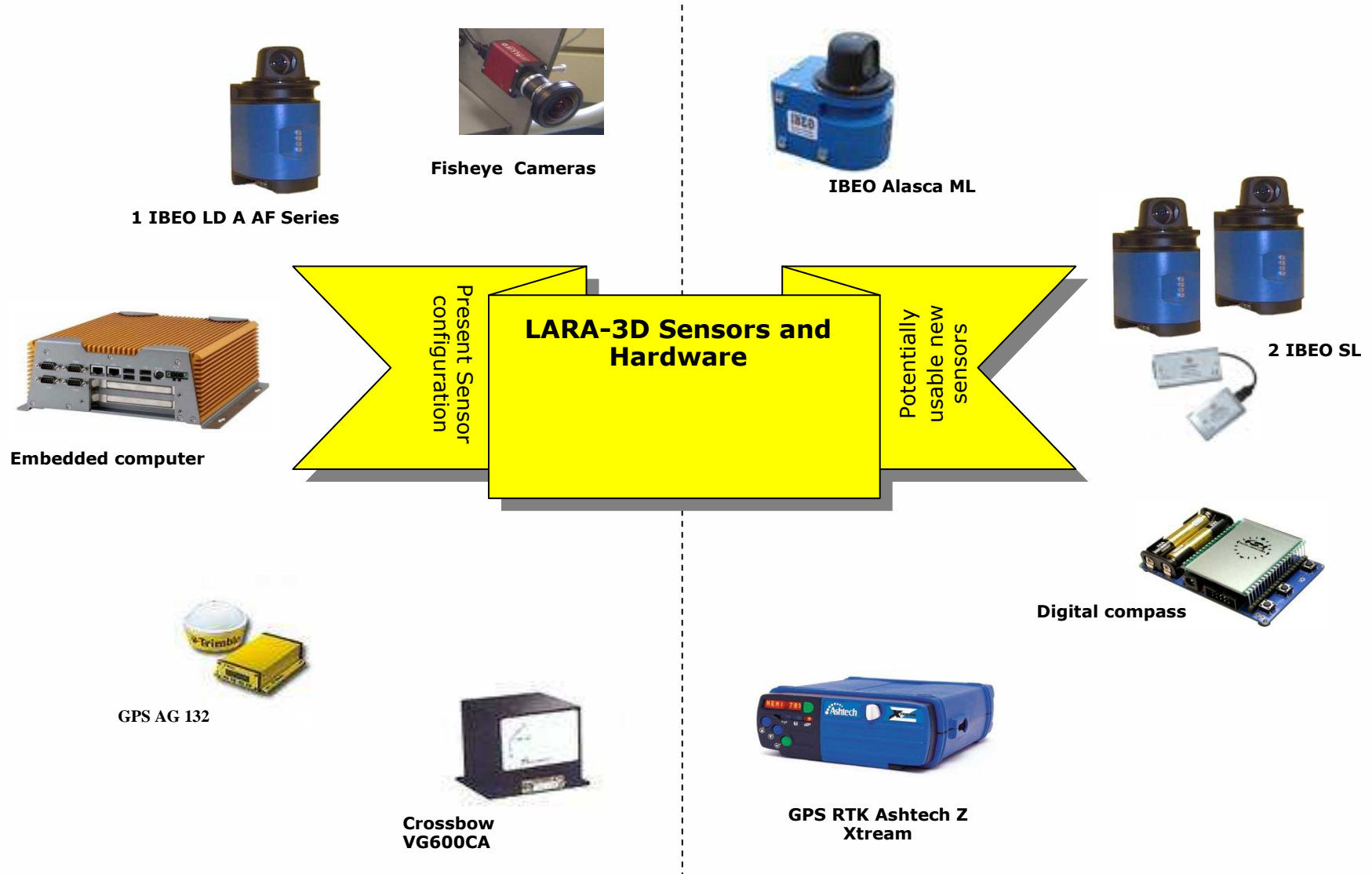
Figure : System in horizontal configuration.



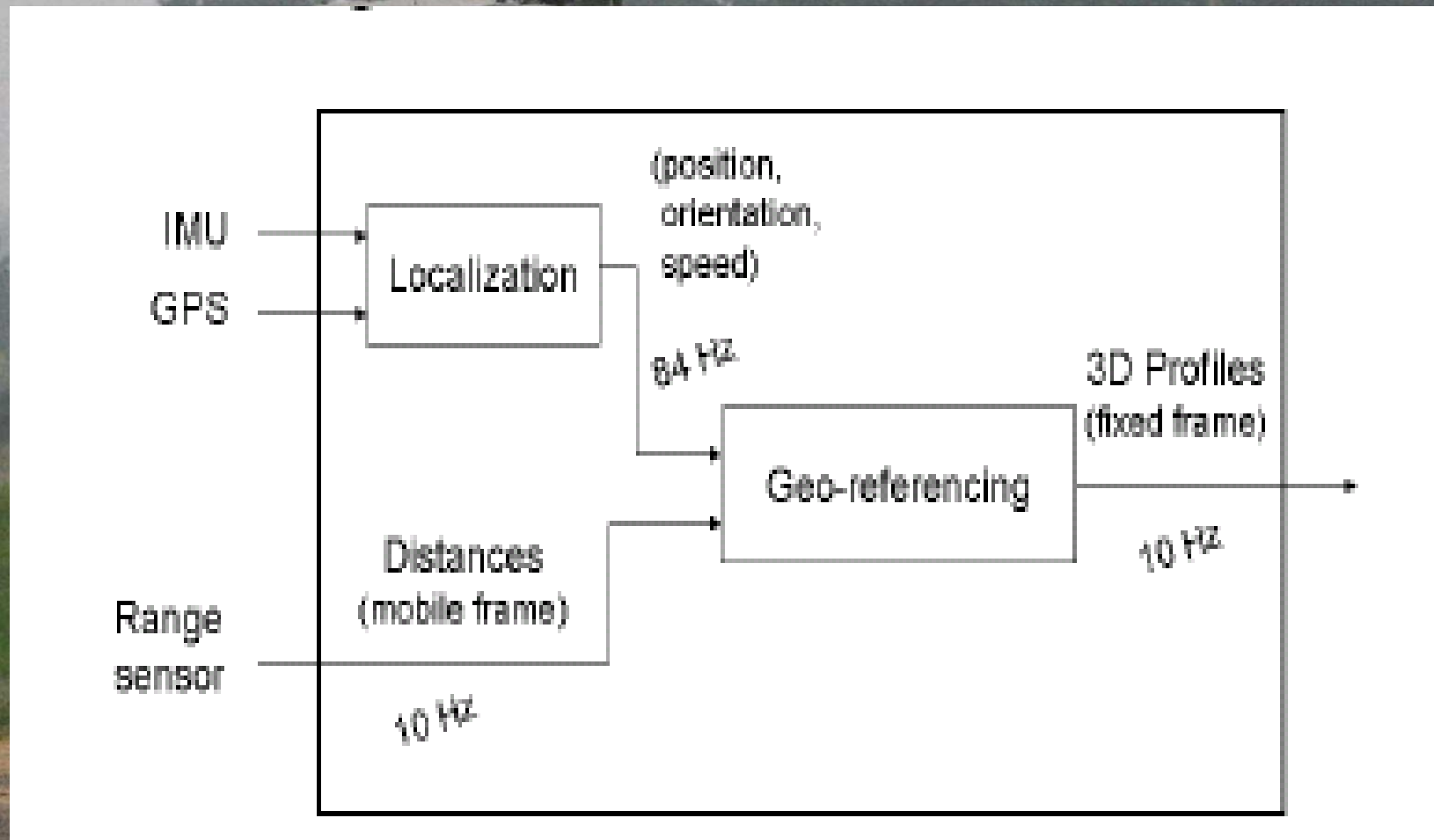
LARA – 3D



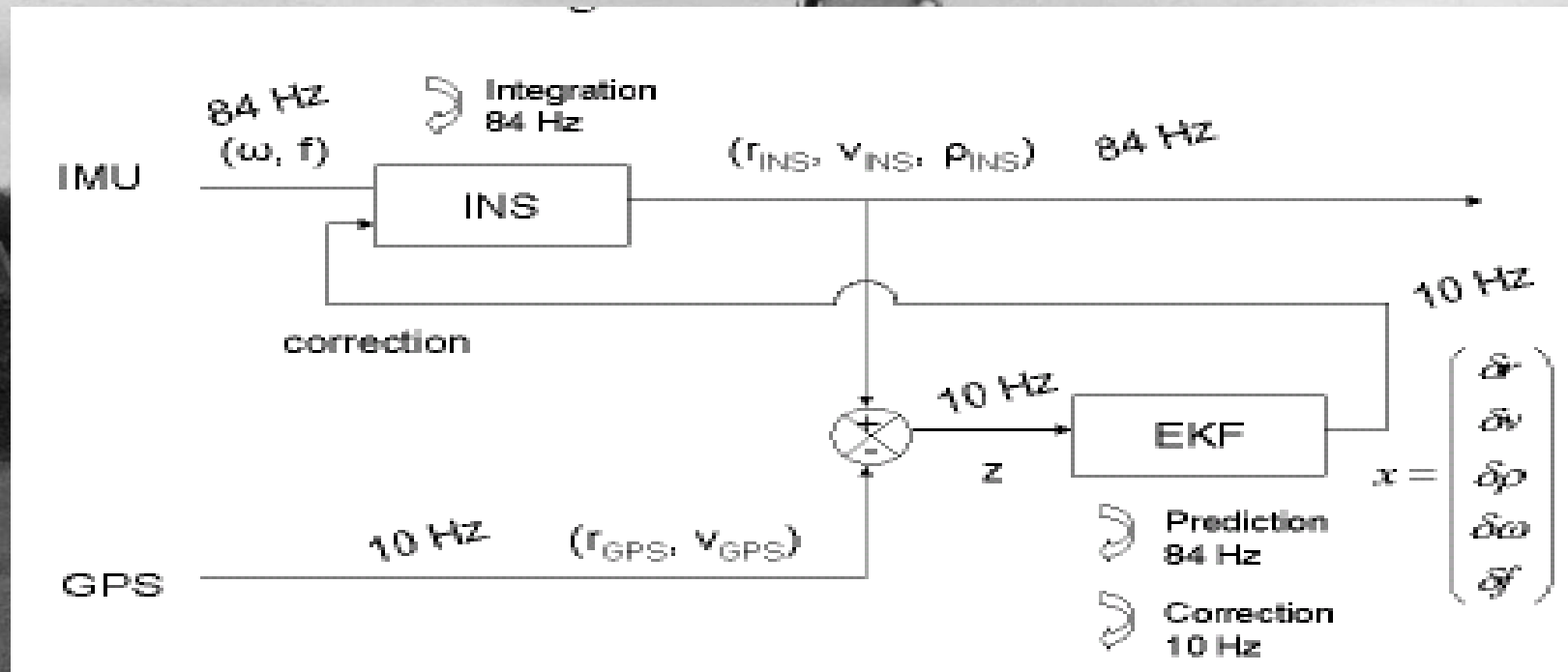
LARA-3D Sensors



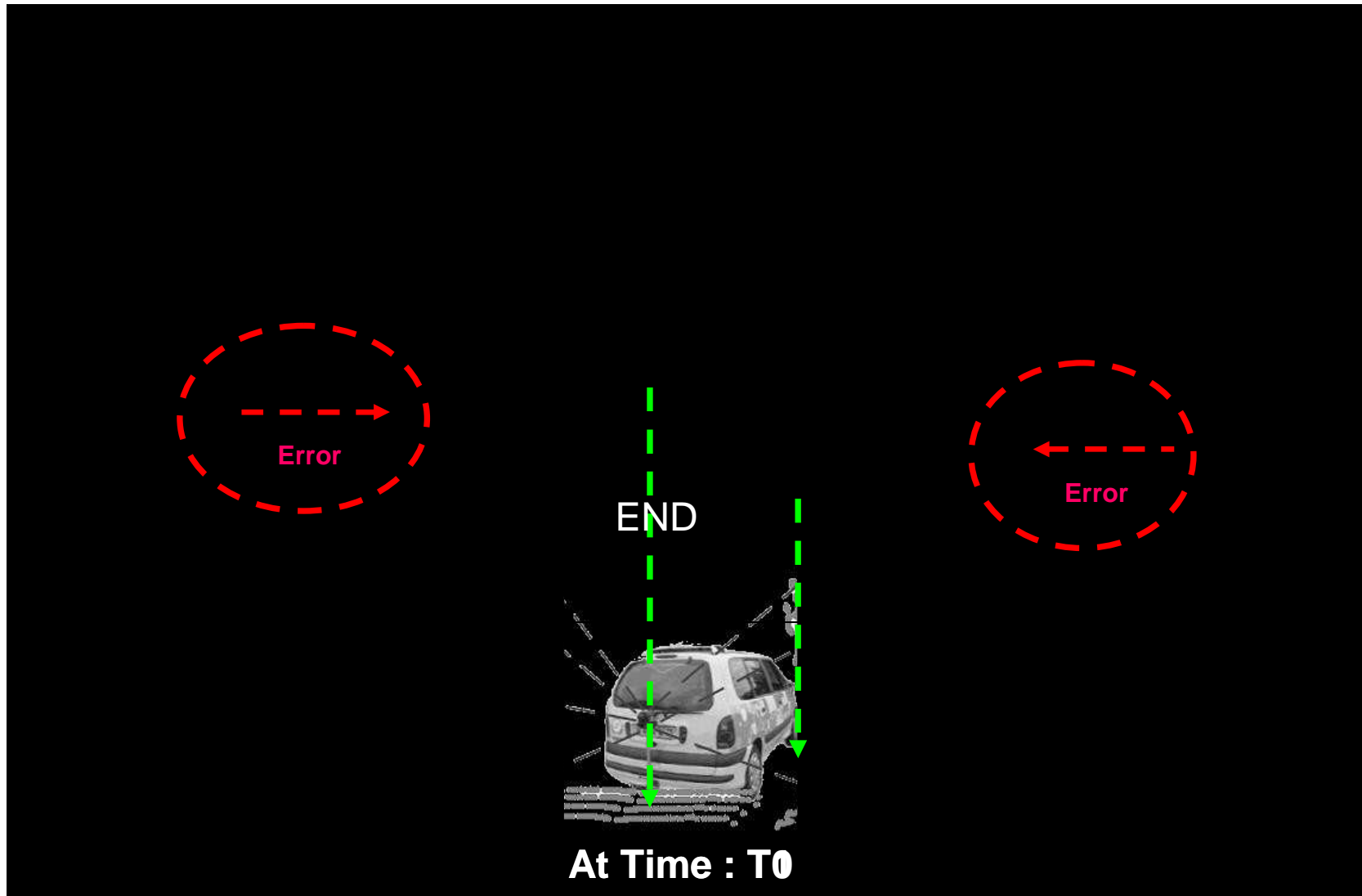
LARA-3D System Architecture



LARA-3D Position Orientation System (POS) Functionality



Why localisation is important in MMS?



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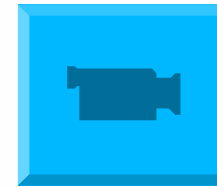
Experimental Data and Analysis

Proposed Improvement by Post-Processing

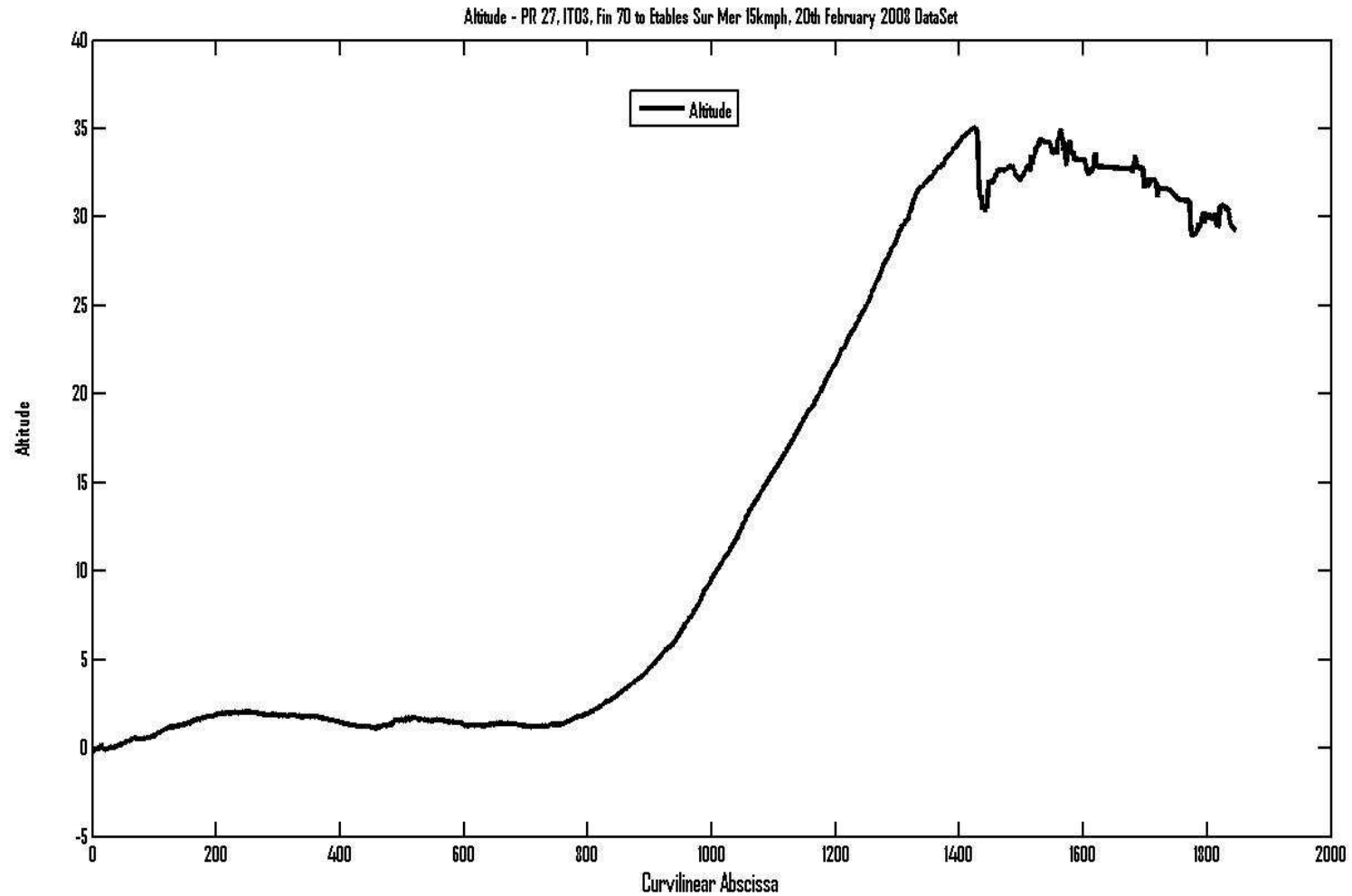
Conclusion



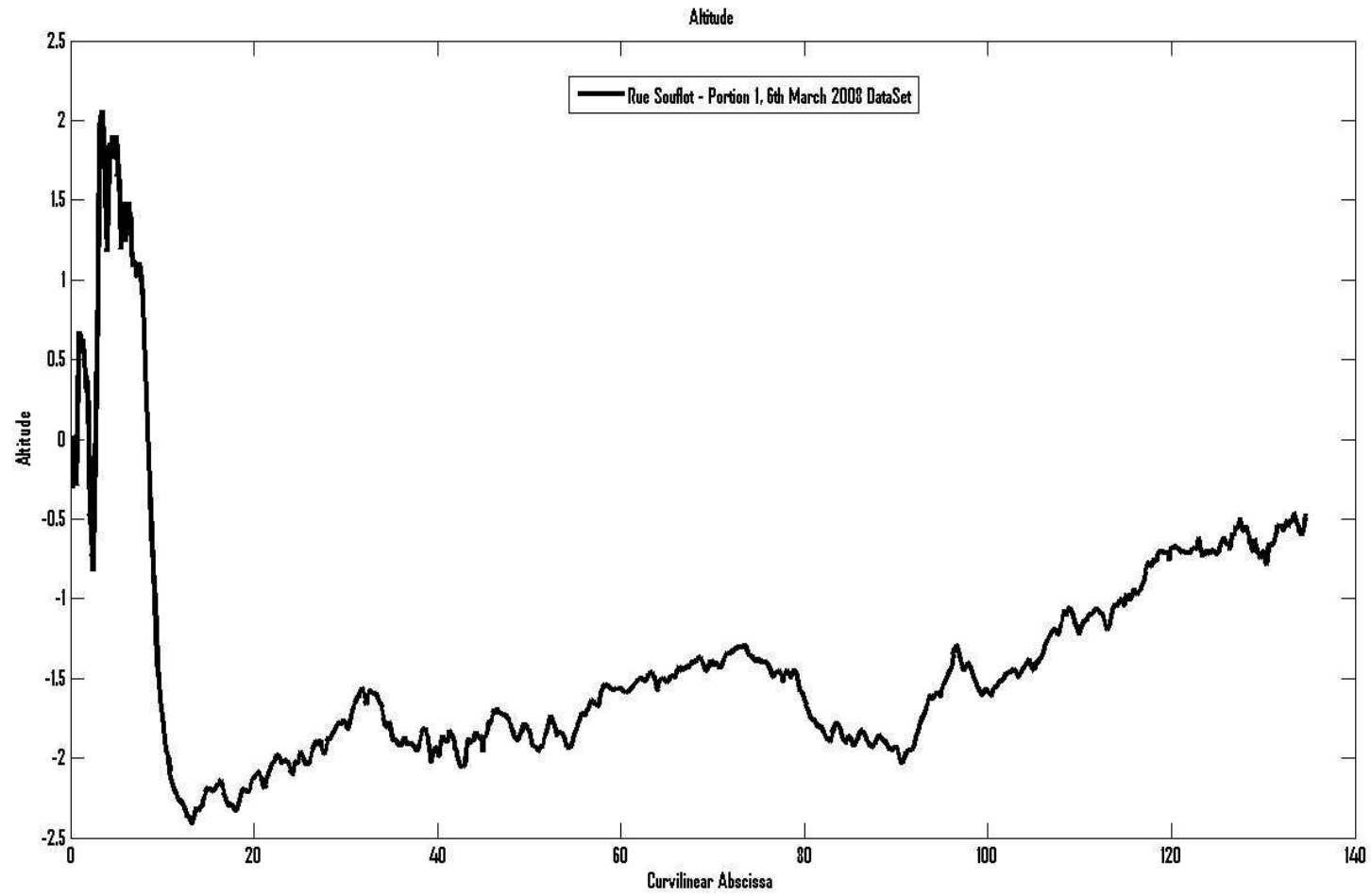
LARA 3D - Generation of 3D Maps



LARA-3D Acquisition Results

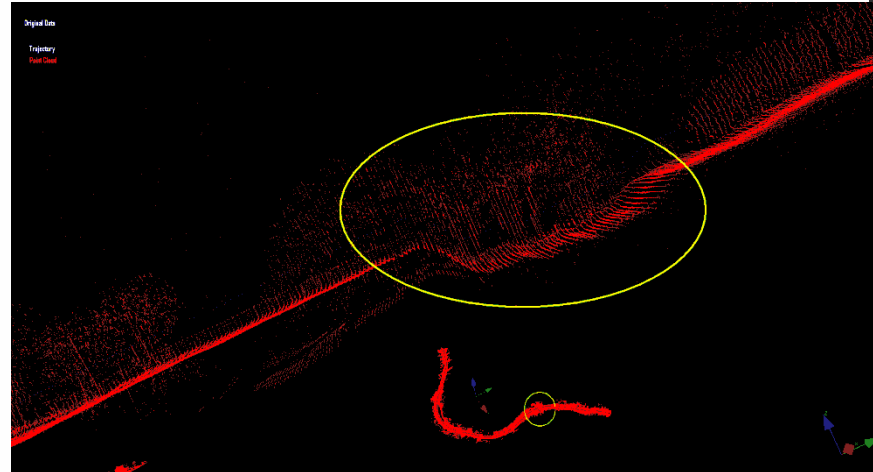
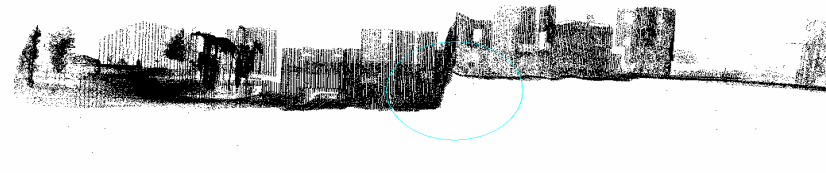
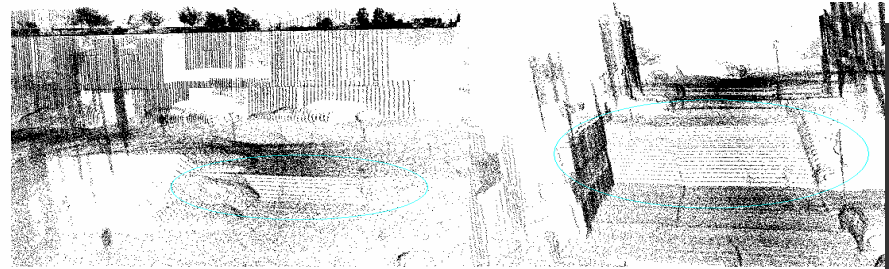


LARA-3D Acquisition Results



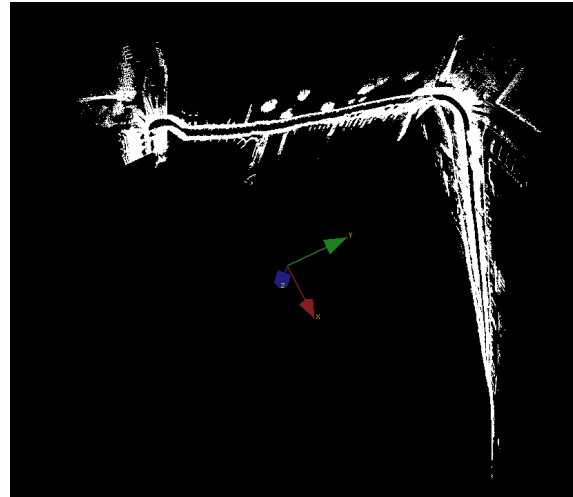
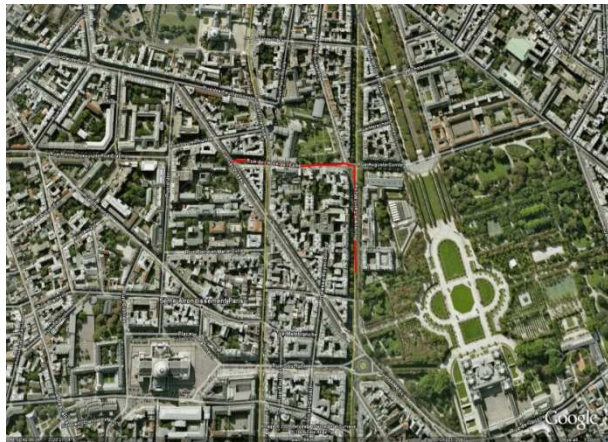
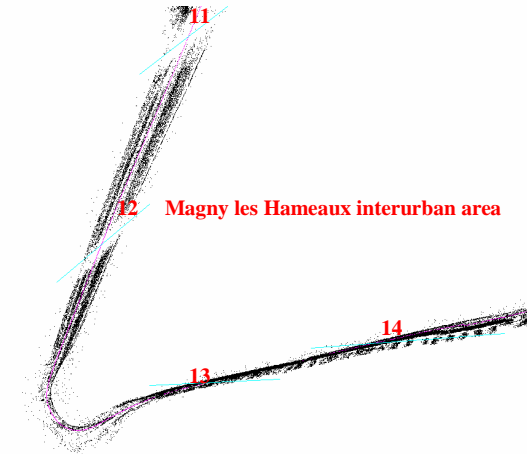
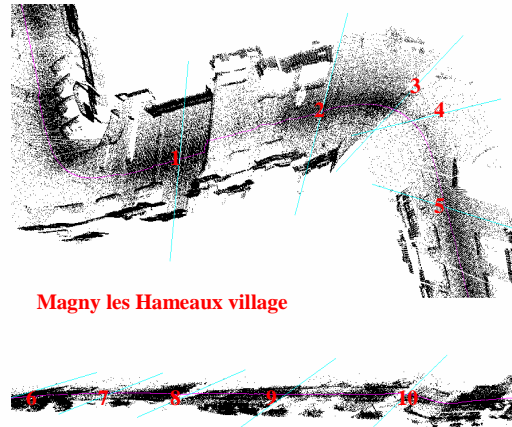
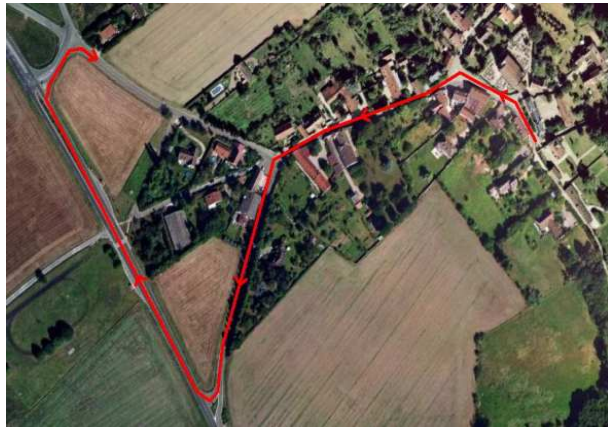
LARA-3D Acquisition Results

Two problems identified – Jump in Altitude



LARA-3D Acquisition Results

Two problems identified – Yaw problems



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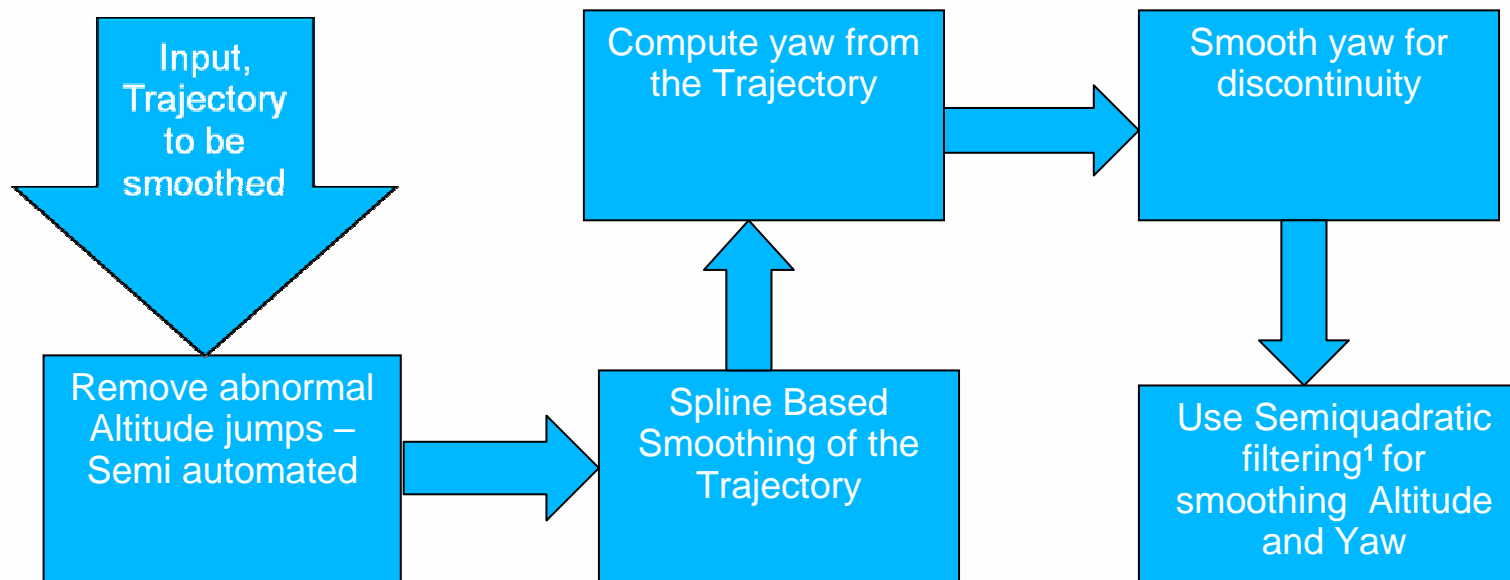
Proposed Improvement by Post-Processing

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Post Processing Technique used and results

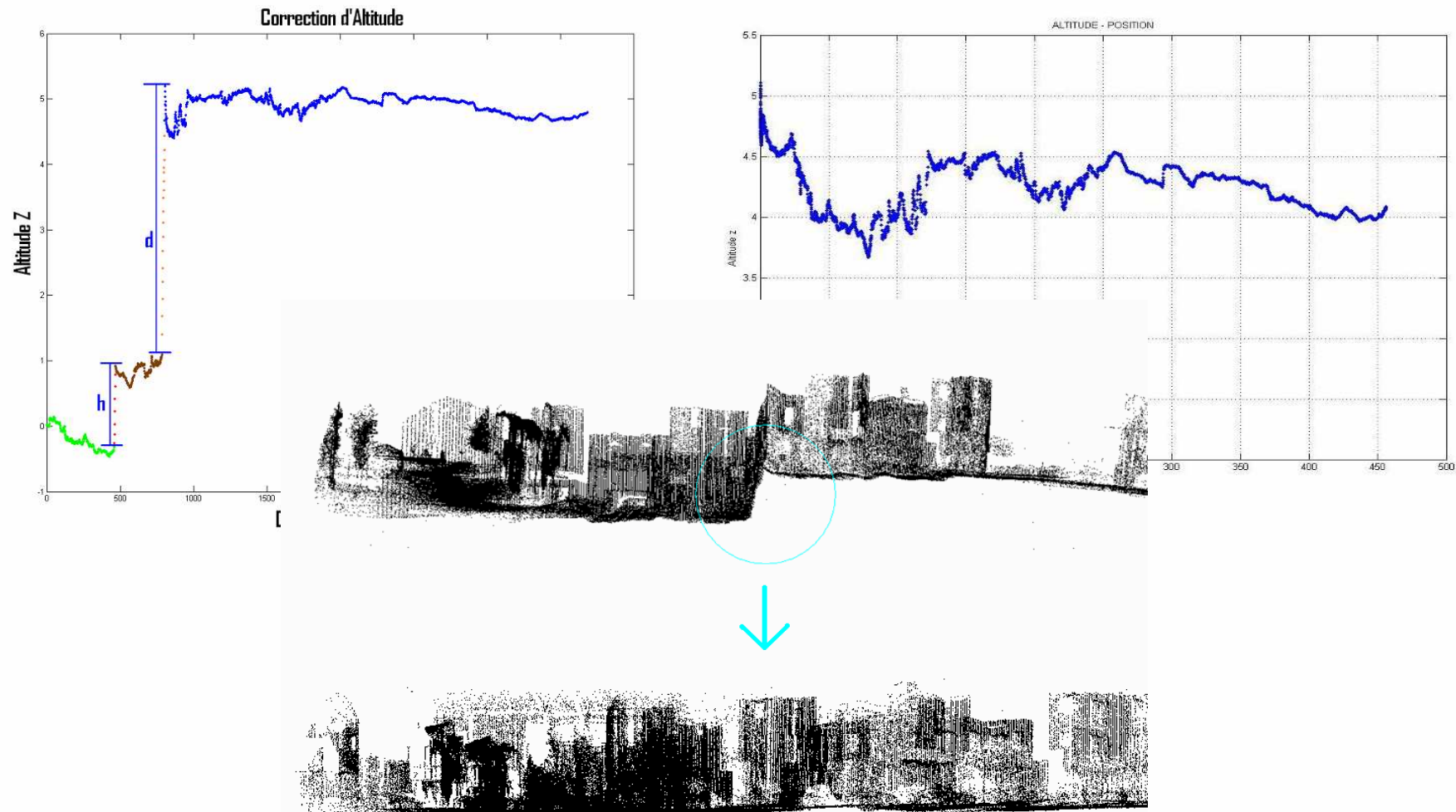
Present Steps Involved in the Process



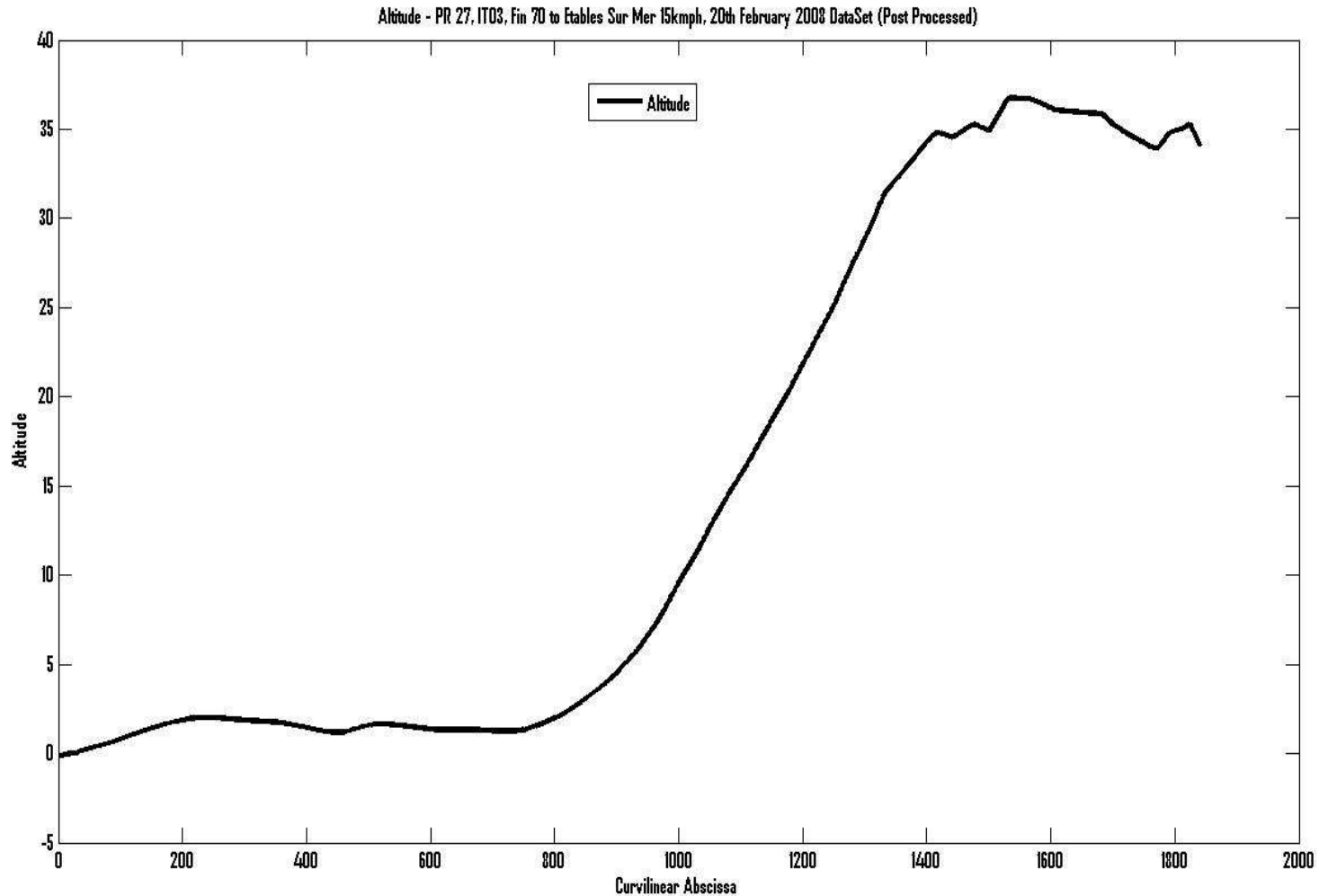
1. Implimentation based on the work from LRPC Strassbourg, P. Charbonnier, J. Tarel, S. Ieng. (2006)



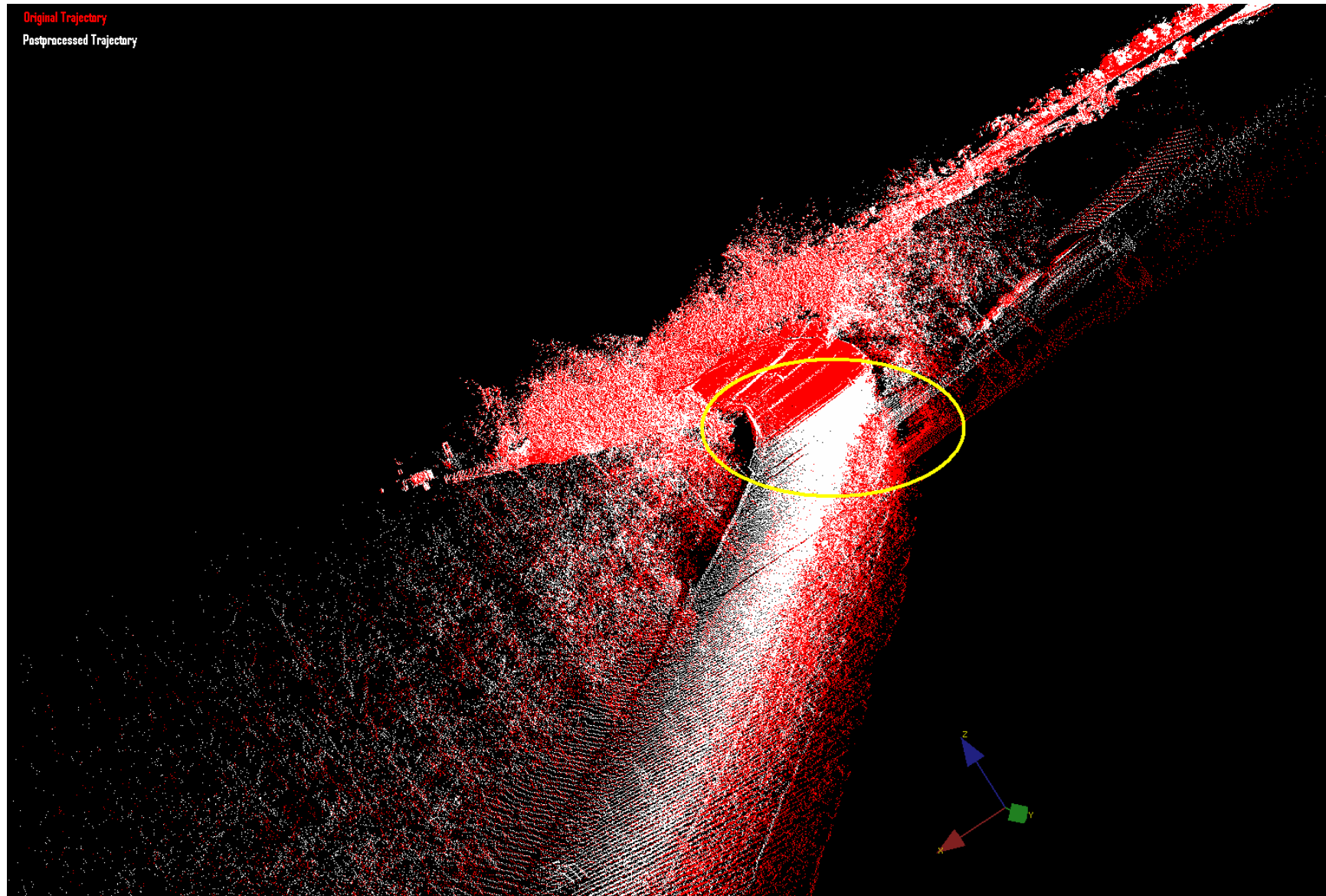
LARA-3D PostProcessing Results



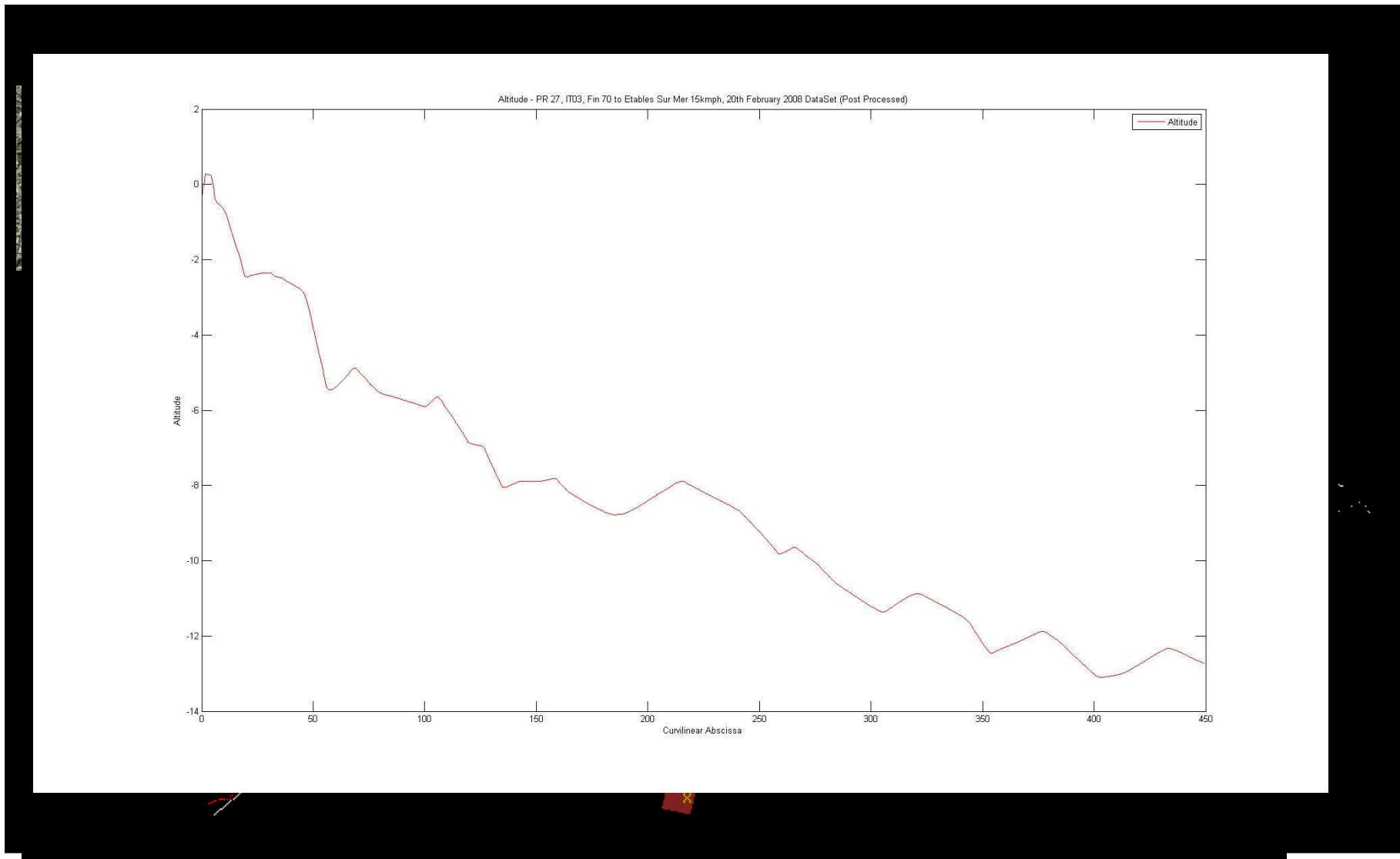
LARA-3D PostProcessing Results



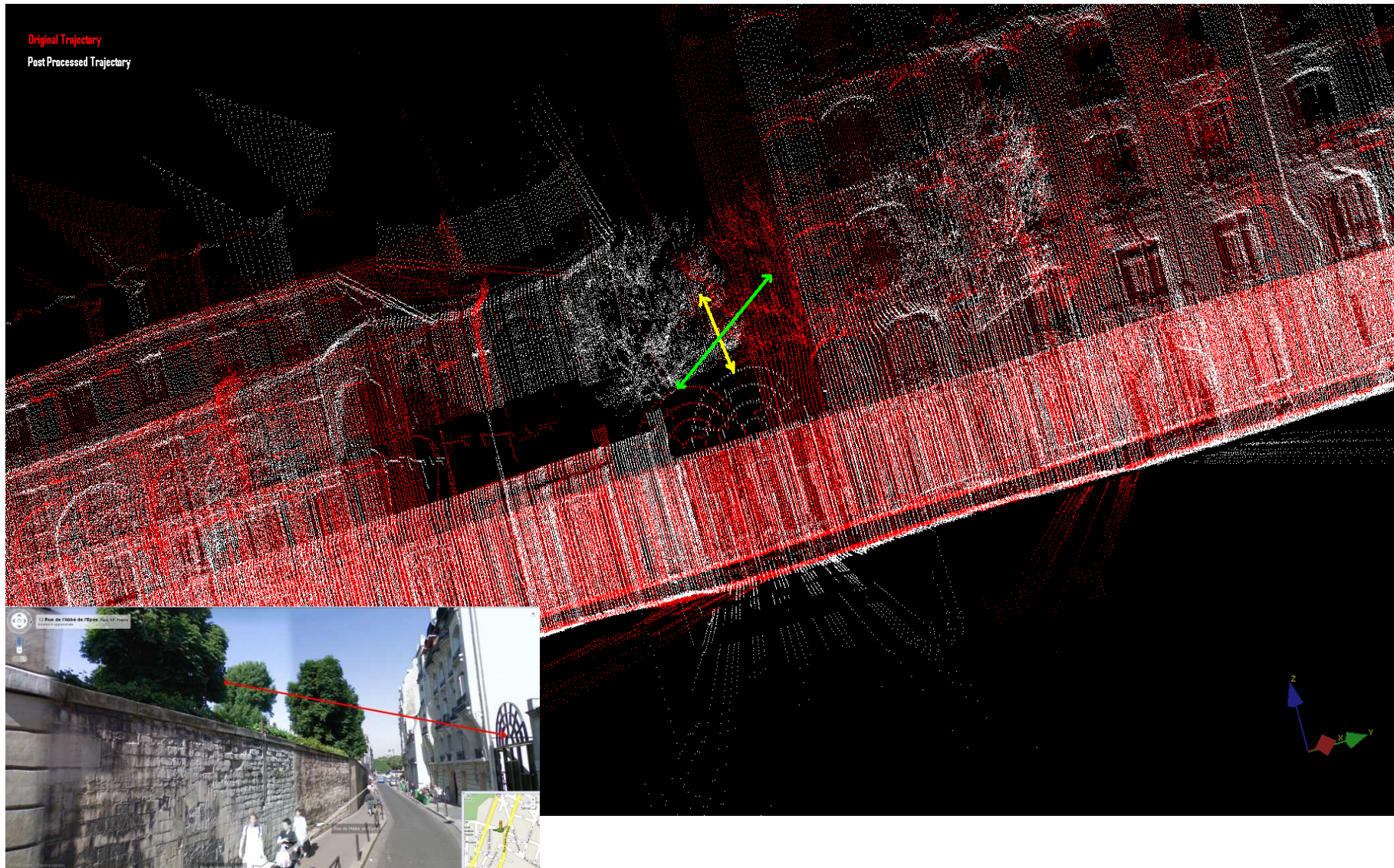
LARA-3D PostProcessing Results



LARA-3D PostProcessing Results



LARA-3D PostProcessing Results



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Conclusion

Choice of Post Processing Approach – Quicker and direct way of achieving the objective of getting a nicer 3D maps/images.

We could even work with the data which are collected and processed long time ago to achieve better results.

In the long-term we will modify the EKF to have similar results as with the post processing techniques.

But at the end, this could also lead us to use both the modified EKF and the post processing techniques in order to obtain better results.



Questions



Thank You for Listening

