



Statistical analysis and preliminary numerical forecast verification of global solar radiation and total cloud cover in Croatia

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Ministry of
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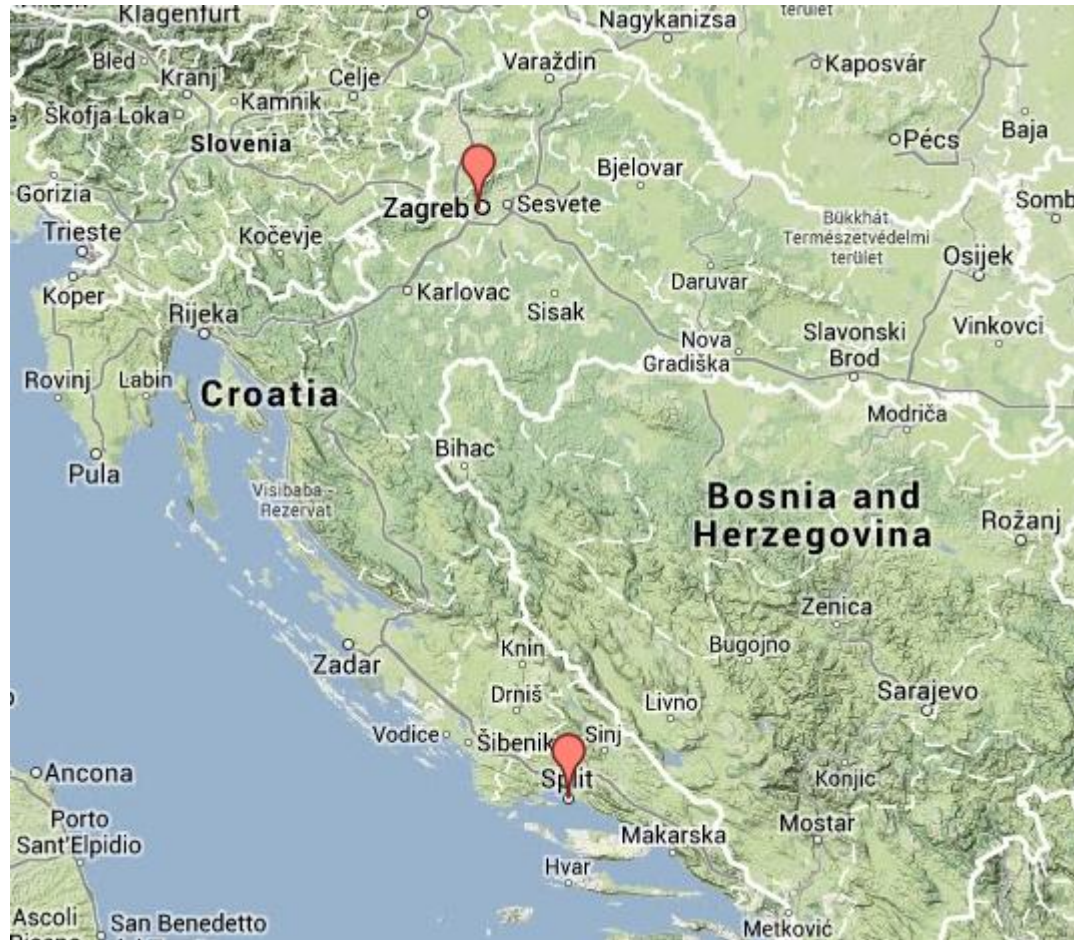
Introduction



- Accuracy of ALADIN NWP model forecast
- Two versions: 8km-3h and 2km-1h grid forecast
- Differences between flat continental (Zagreb) and complex coastal (Split) terrain forecasts
- Studied period: 2010. - 2012.
- Measurements: Zagreb – Maksimir and Split – Marjan; global solar irradiation (10min), total cloud cover (1h)

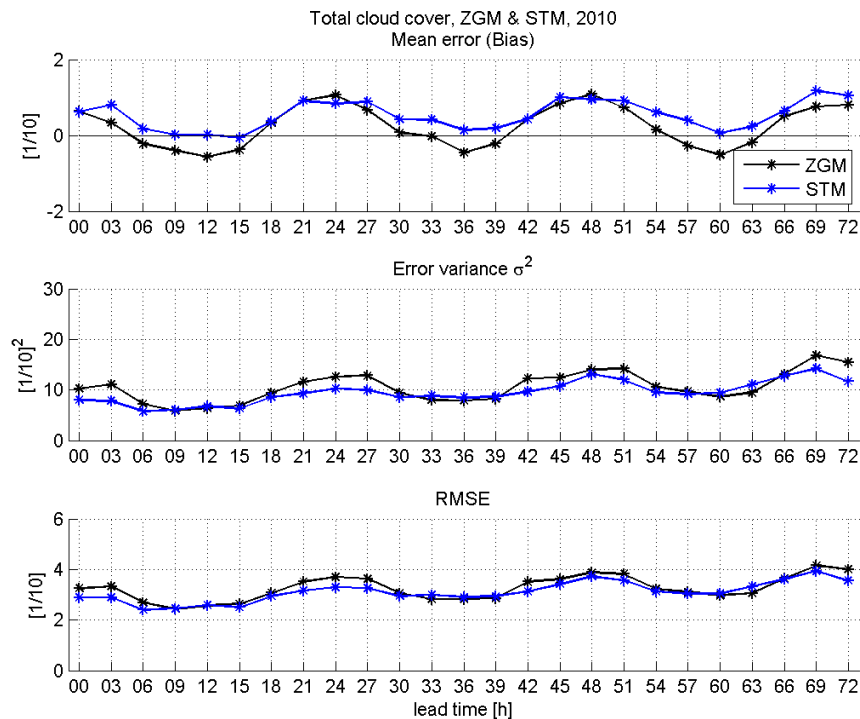
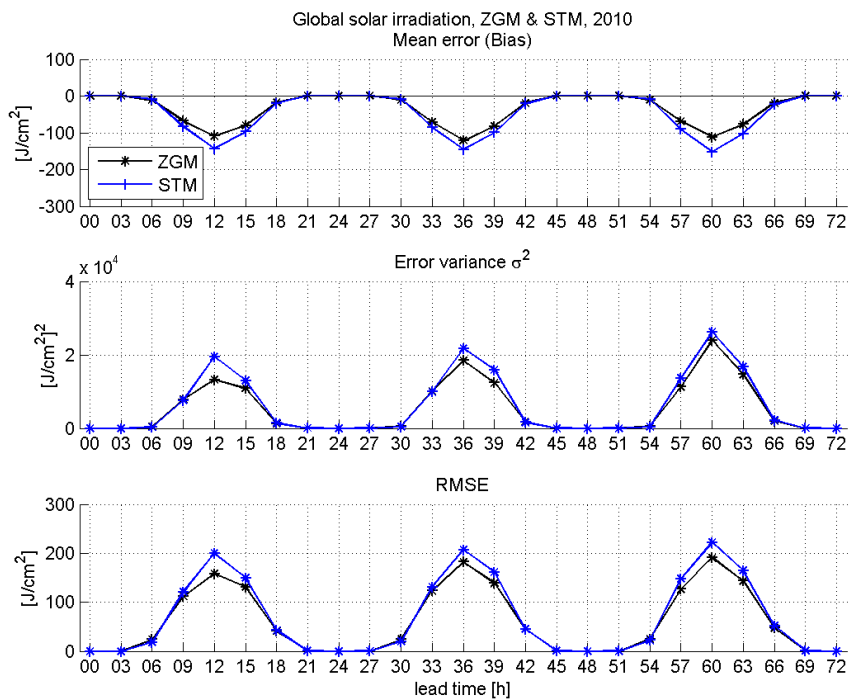


Introduction





ALADIN forecast verification

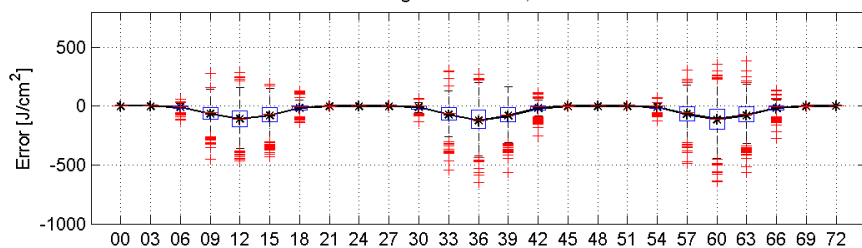




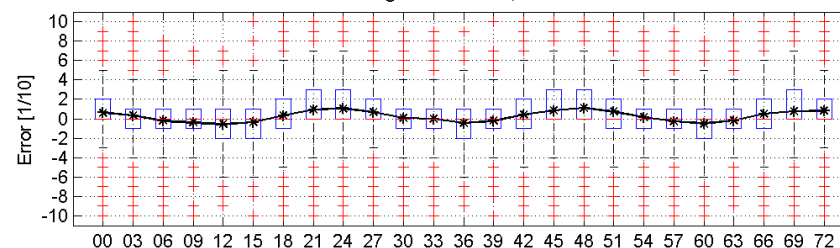
ALADIN forecast verification



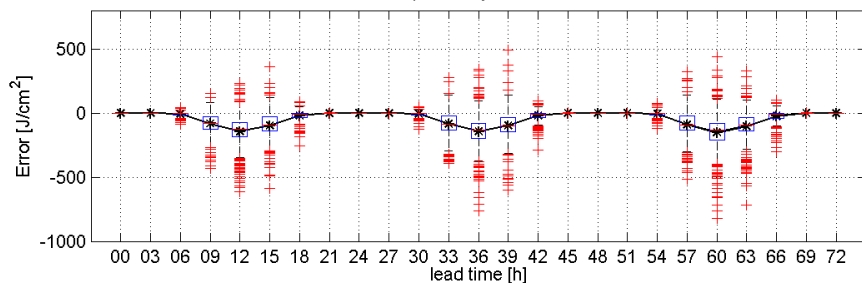
Global solar irradiation, Mean error (Bias) & Boxplot (Error)
Zagreb - Maksimir, 2010



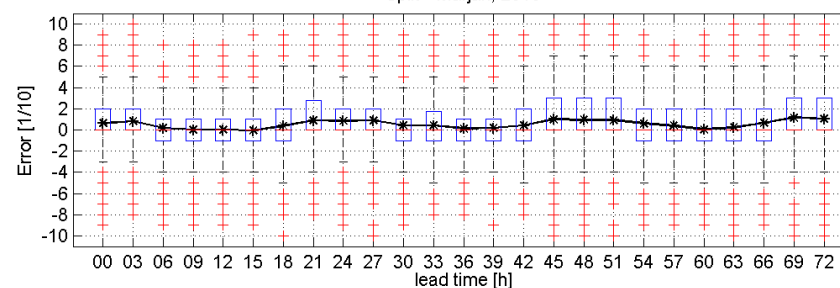
Total cloud cover, Mean error (Bias) & Boxplot(Error)
Zagreb - Maksimir, 2010



Split - Marjan, 2010

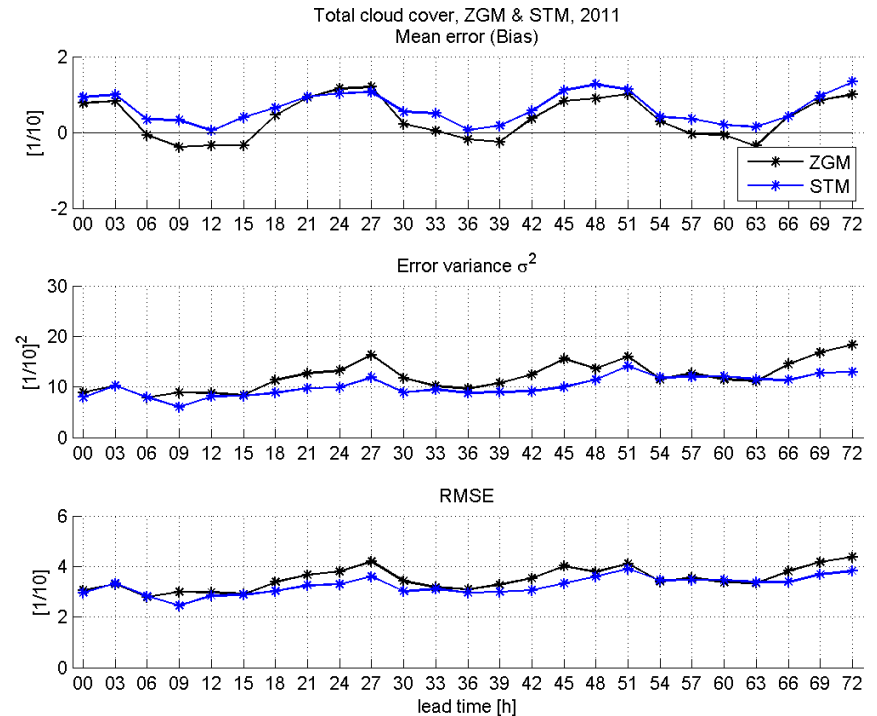
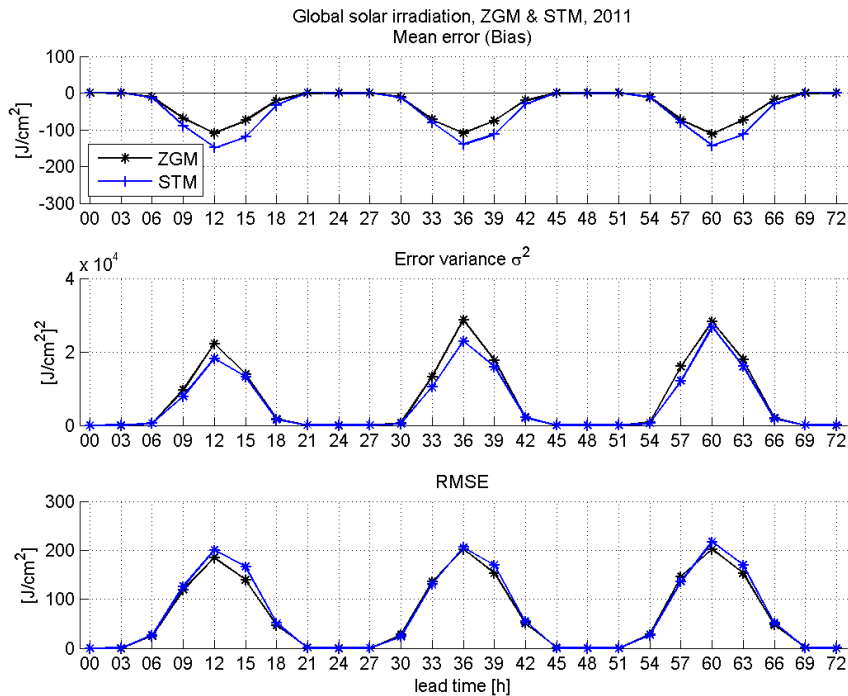


Split - Marjan, 2010





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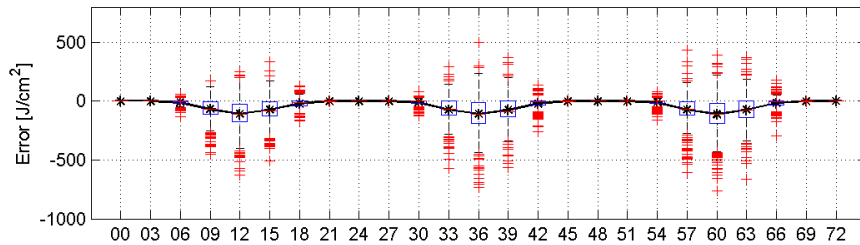




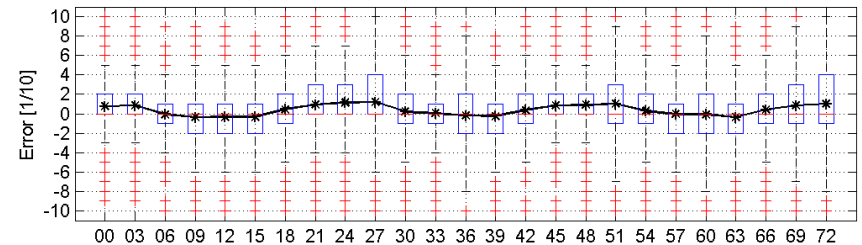
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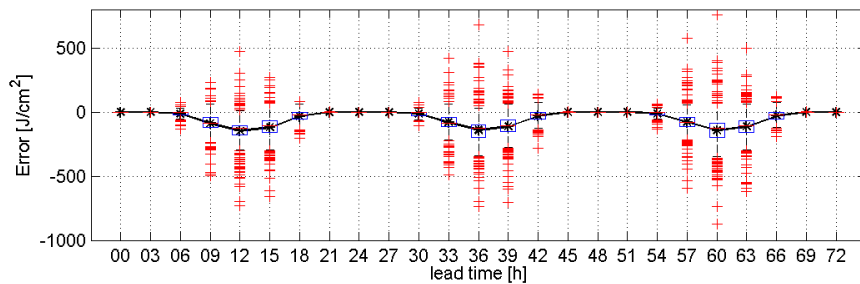
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Zagreb - Maksimir, 2011



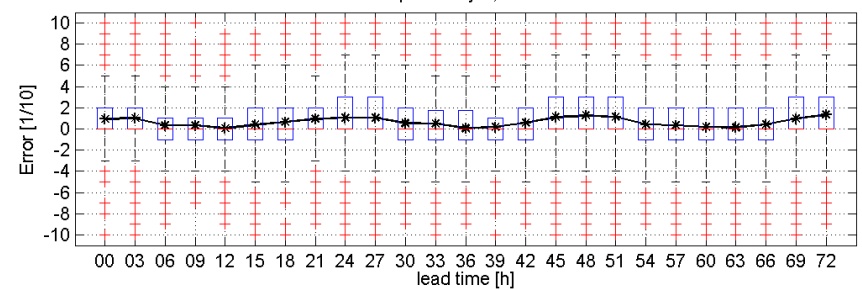
Total cloud cover, Mean error (Bias) & Boxplot (Error)
Zagreb - Maksimir, 2011



Split - Marjan, 2011

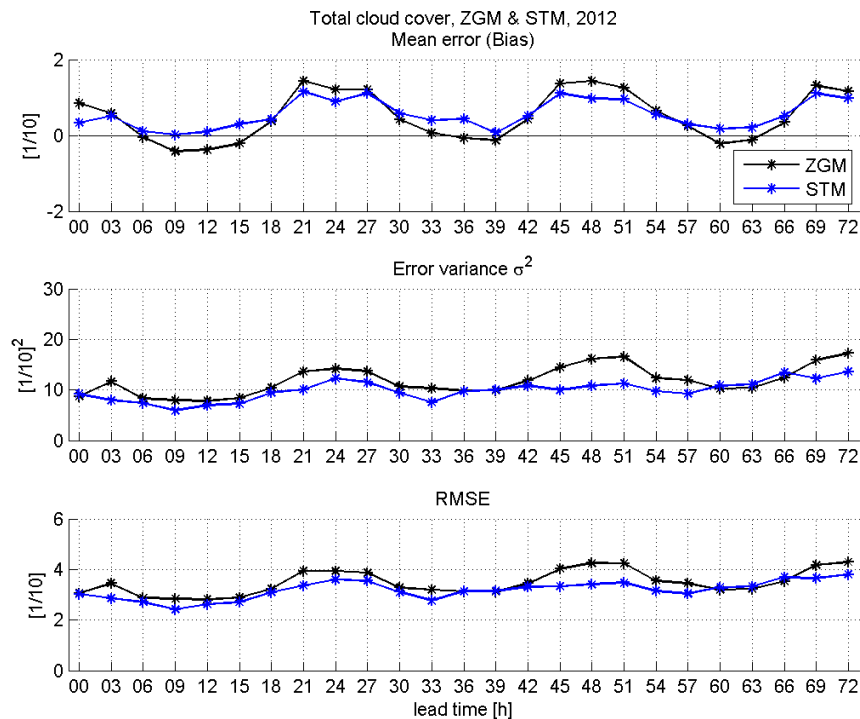
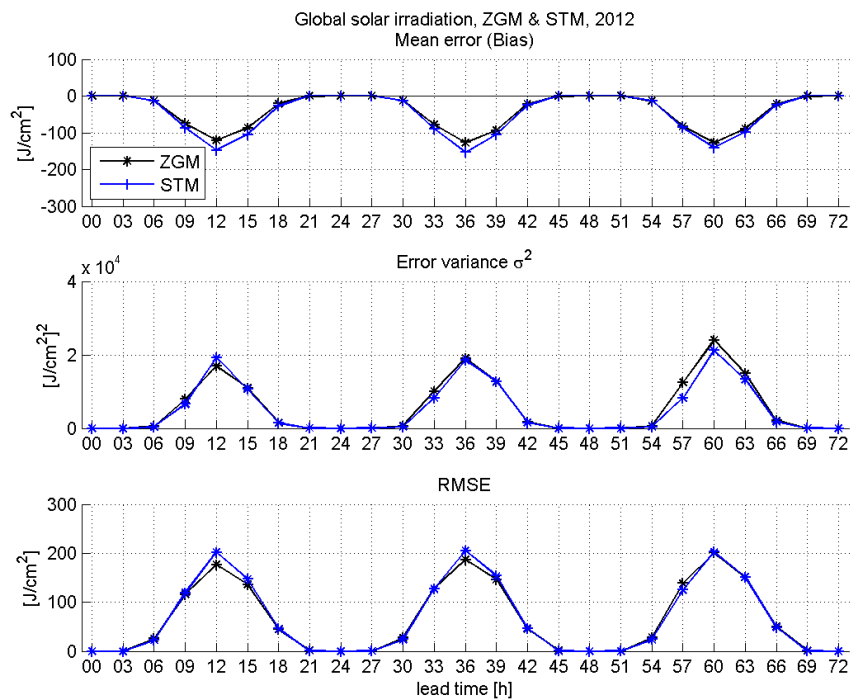


Split - Marjan, 2011





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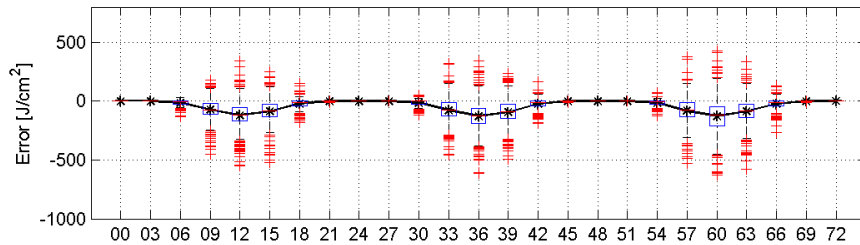




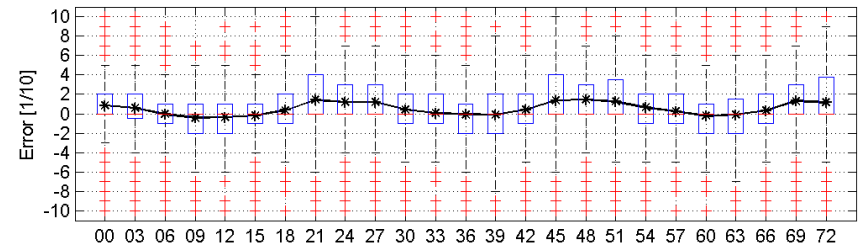
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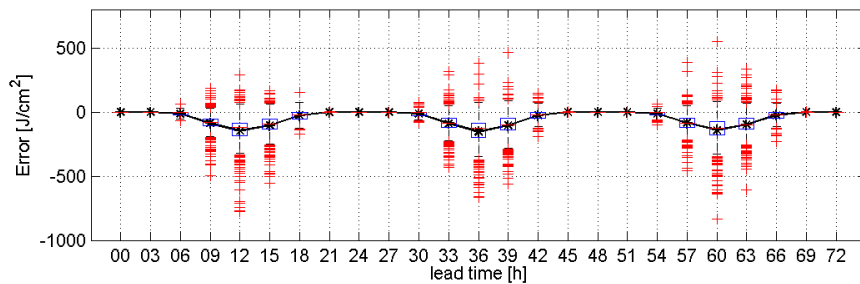
Global solar irradiation, Mean error (Bias) & Boxplot (Error)
Zagreb - Maksimir, 2012



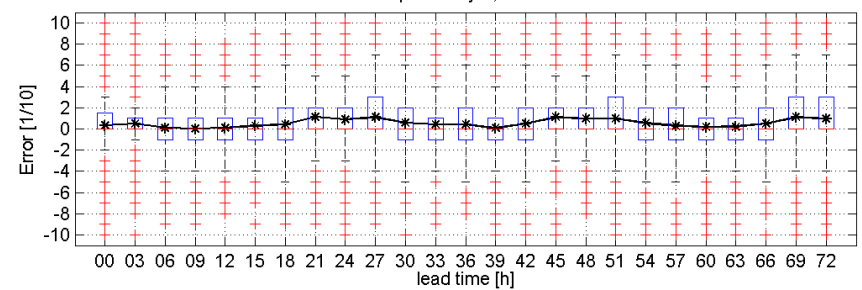
Total cloud cover, Mean error (Bias) & Boxplot(Error)
Zagreb - Maksimir, 2012



Split - Marjan, 2012

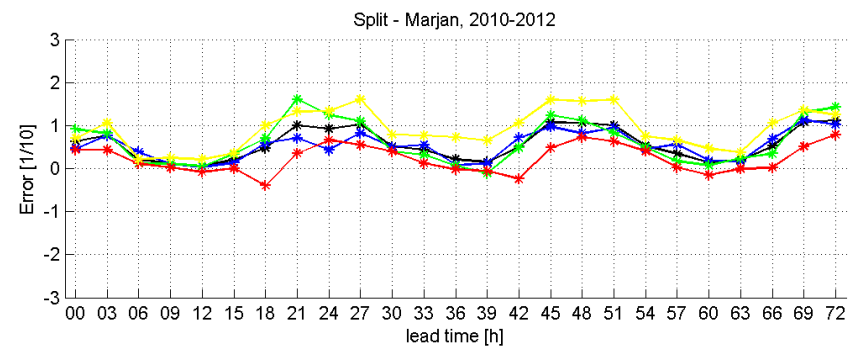
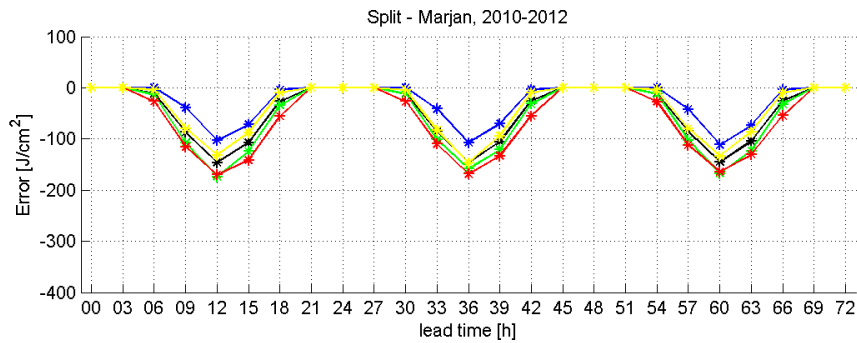
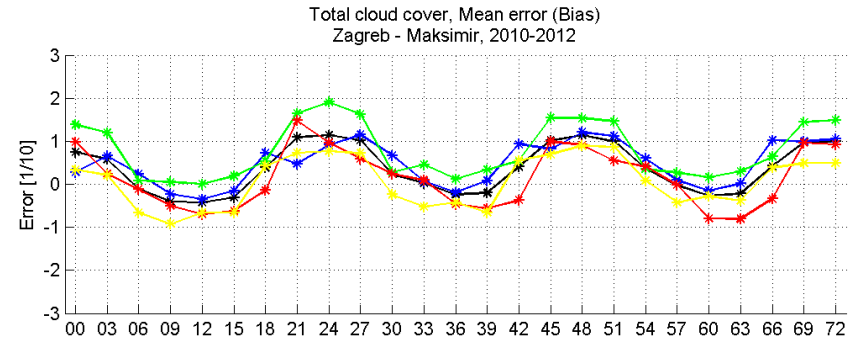
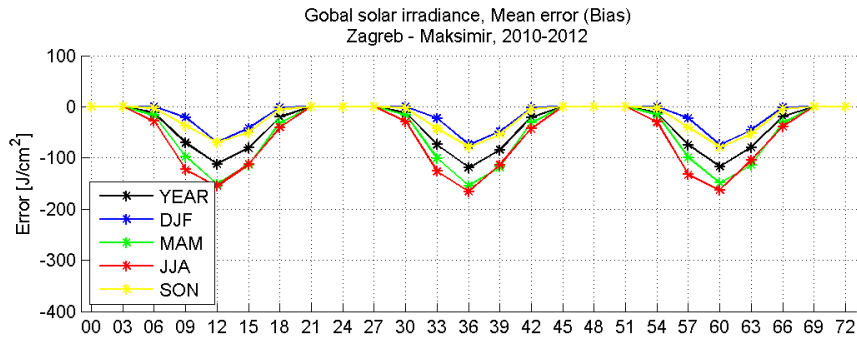


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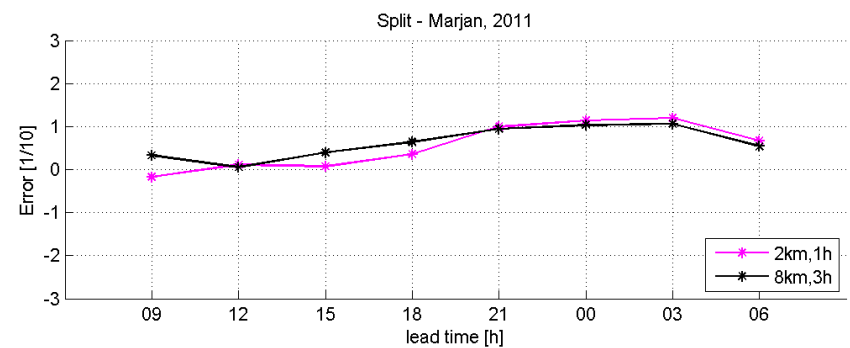
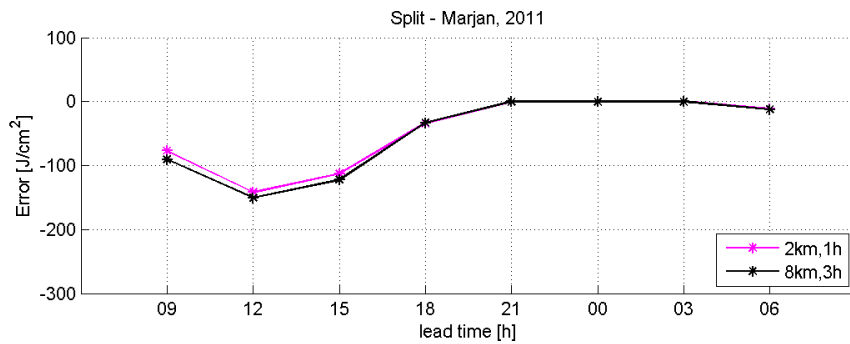
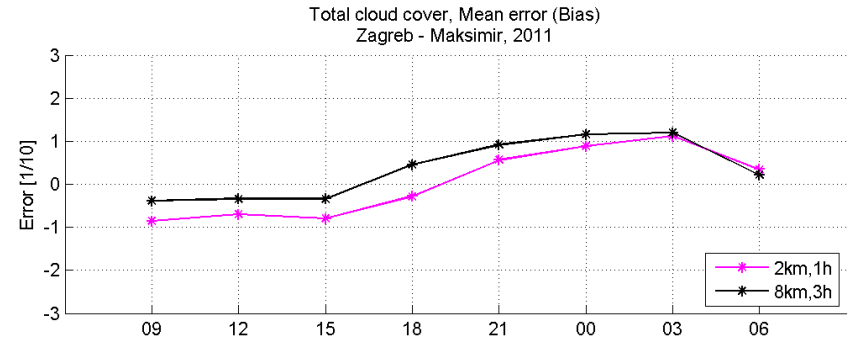
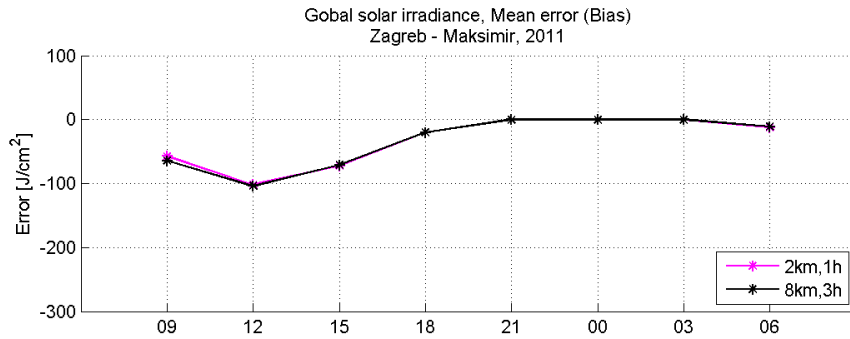


ALADIN forecast verification



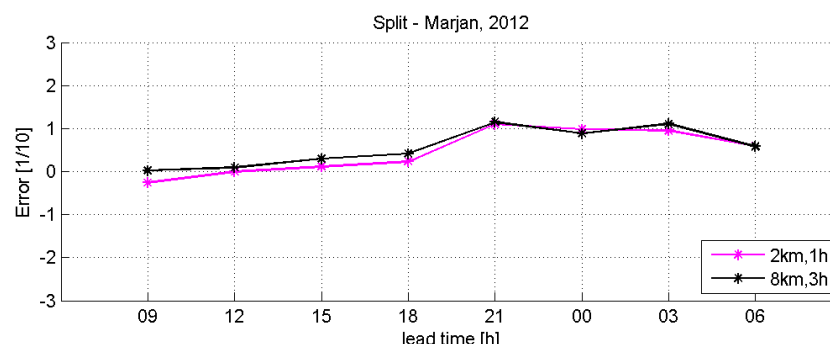
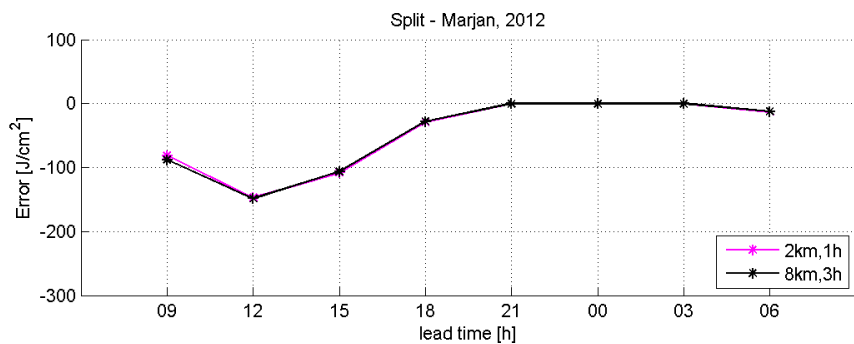
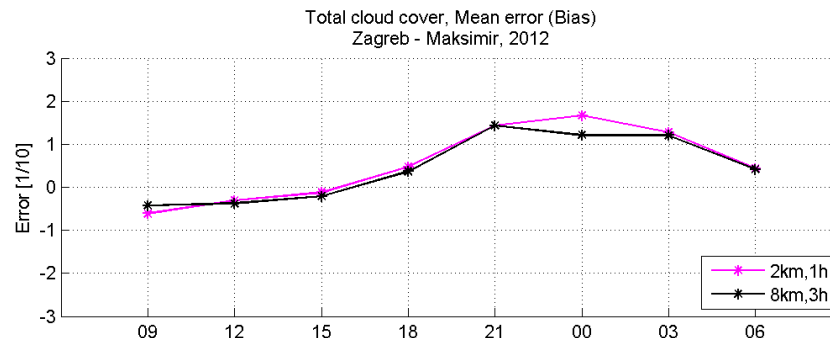
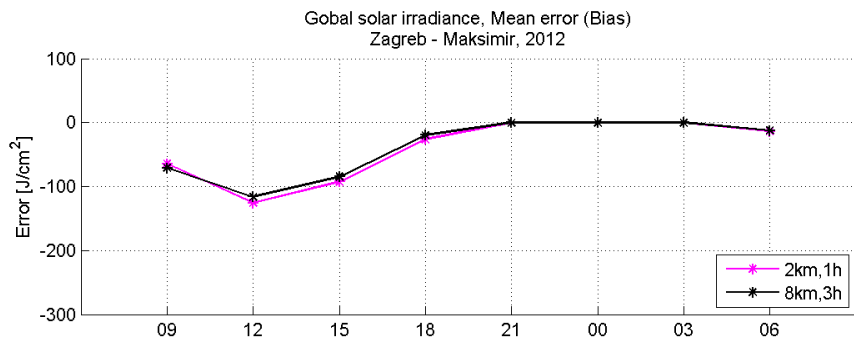


ALADIN forecast verification





ALADIN forecast verification





Conclusion



- Global solar irradiation – generally underestimated, but there are some caeses of overestimation
- Total cloud cover is generally overestimated
- Underestimation of global solar irradiation is emphasized for complex coastal terrain (Split)
- Similar results for 2km-1h grid forecast
- Seasonal (and monthly) verificiation shows seasonal variability of error



Thank you for your attention

Questions and suggestions are
welcome!