

Interactive comment on “A comparison of methods for smoothing and gap filling time series of remote sensing observations: application to MODIS LAI products” by S. Kandasamy et al.

Anonymous Referee #3

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This paper compares 8 methods for filling and smoothing time-series, applied to MODIS LAI time-series. The comparison is made over a realistic sample of sites representative of the main biomes with associated characteristic gap structures. This study is highly relevant for land surface monitoring and climate change studies, particularly in the phenology domain. The paper is well structured; the data, methods and metrics are clearly described. Results are quite detailed and cleverly analyzed and discussed. This work will prove highly useful and I recommend its publication in Biogeosciences, after some minor comments have been addressed.

Page 17056 - line 11: Gao et al., 2008 - line 16: Qi and Kerr (1997)

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Page 17064, lines 13-14: ‘Once the average yearly time course was computed, it was replicated across all the years considered to provide a reconstructed time series’. How is it then that for example on Figure 4, site 338, the climatology seasonal cycle clearly differs from one year to the other?

Page 17067, line 8: nj

Page 17068, line 8: mj

Page 17069, line 19: should 85 be replaced by 72 and 130 by 128, according to the corresponding limitations given in section 2.2? Or are these real gap length values? I don’t understand why for example the LPF method fails to fill the gap when the gap length is below the threshold set by the authors. In this case, the linear interpolation is first applied and then the rest of the method, so there should be no more gaps. The authors should clarify this point.

Page 17071, line 28: boxcompromise???

Page 17072, line 24: 10 days.

Page 17074, line 16: RMSE < 0.5

Page 17075, lines 22-25: However, for the four more LAI accurate methods, the phenological accuracy spreads vertically from 6 to 14 days; do the authors have some explanation for this discrepancy?

Page 17084: I know there are already many figures but a map would be nice.

Page 17086: Gap time series (384 sites)

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