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Título: A reliable interpolation method for CMB images

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Resumen:

An evenly sampled data set is a rare situation in astronomical data analysis. Systematic effects, contaminating sources, instrumental issues or accidental events can introduce gaps that make difficult fitting models and may lead to an inconsistent data analysis. The impact of missing data in astronomical data analysis is often mitigated by filling the gaps with predicted values. However, some algorithms are based on the principle of retouching, i.e. that an acquired image or dataset is modified in a way that is non-detectable for a human being who does not know the original image. One example are the gap-filling used for the missing patches in CMB images caused by the residual contributions of the galactic region. We show here the necessity of using a reliable gap-filling algorithm, that is, which is aimed to preserve the original information, to achieve an unbiased interpretation of the data. We study the possible extension to 2D images of an interpolation method already used effectively for filling the gaps in the light curves of pulsating stars observed by ultra-precise space missions.