Title: Non-Homogeneous Spatio-Temporal Random Fields and
Reconstruction of Oceanic Records.

Abstract: We consider parsimonious representations of non-homogeneous
spatio-temporal random fields. We focus on processes that can be represented
as linear combinations of basis functions. We present a detailed description
of an approach that uses discrete process convolutions with spatially varying,
compactly supported kernels. We discuss the similarities and differences
between this approach and the predictive Gaussian process approach. We will
then focus on the reconstruction of records of sea surface temperature,
including the detection of long-term trends as well as the problem of merging
information from different data sources at different spatial resolutions.