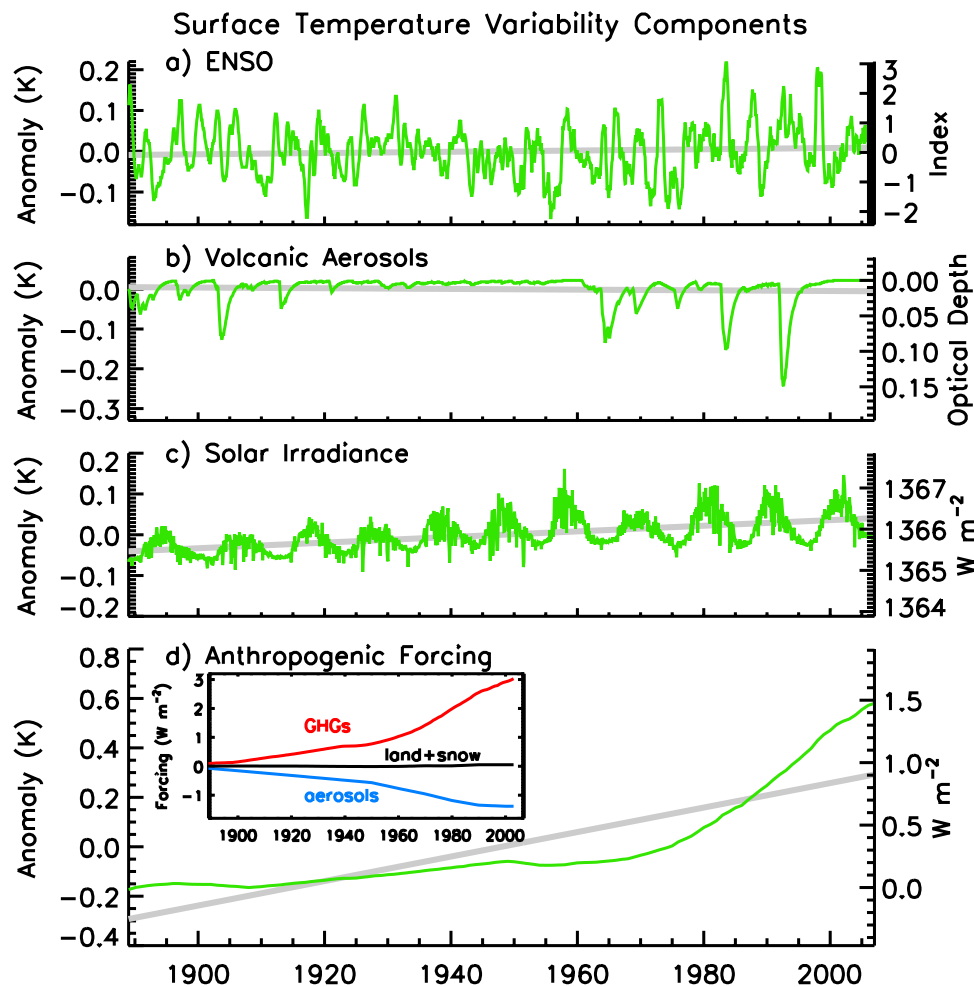


**Figure 1.** Compared with the CRU monthly mean global temperature time series (hadcrut3vcgl) is an empirical model obtained from multiple regression for the period from 1889 to 2006, inclusive. The value of  $r$  is the correlation coefficient for the global temperature observations and empirical model. Largest differences occur at the times of the two World Wars when observations were sparse.

and depicting the associated regional temperature trend patterns.

## 2. Datasets

[5] Shown in Figure 1 is the long-term instrumental record of monthly mean global (land plus ocean) surface temperature anomalies since 1889, constructed by the University of East Anglia Climatic Research Unit (CRU) [Brohan *et al.*, 2006]. Monthly fluctuations in ENSO, volcanic aerosols, solar irradiance and anthropogenic influences are shown in Figure 2. The multivariate ENSO index, a weighted average of the main ENSO features contained in sea-level pressure, surface wind, surface sea and air temperature, and cloudiness [Wolter and Timlin, 1998], extends from 1950 to 2006. It is augmented with an index derived from Japan Meteorological Agency sea surface temperatures from 1868 [Meyers *et al.*, 1999]. Volcanic aerosols in the



**Figure 2.** Reconstructions of the contributions to monthly mean global surface temperatures by individual natural and anthropogenic influences (at appropriate lags) are shown. The right hand ordinates give the native scales of each influence and the left hand ordinates give the corresponding temperature change determined from the multiple regression analysis. The grey lines are trends for the whole interval. The inset in Figure 2d shows the individual greenhouse gases, tropospheric aerosols and the land surface plus snow albedo components that combine to give the net anthropogenic forcing.