```
    # calculate total errors
    sigma_the = ds_dthe*sig_the*1.e-3
    sigma_phe = ds_dphe*sig_phe*1.e-3

    sigma_thp = ds_dthp*sig_thp*1.e-3
    sigma_php = ds_dphp*sig_php*1.e-3

    sigma_thb = ds_dthb*sig_the*1.e-3
    sigma_phb = ds_dphb*sig_phb*1.e-3

    sigma_ef = ds_def*sig_ef*ef
    sigma_dE = ds_dE*sig_E*E_inc

    sigma_tot = np.sqrt(sigma_the**2 +
                        sigma_phe**2 +
                        sigma_thp**2 +
                        sigma_php**2 +
                        sigma_thb**2 +
                        sigma_phb**2 +
                        sigma_ef**2 +
                        sigma_dE**2)
    problem = np.isnan(sigma_tot)
```

‘sig_the’ should be ‘sig_thb’

```
    sig_E = 3.e-4

    ds_the = 0.
    ds_dphe = 0.
    ds_def = 0.
    ds_dthp = 0.
    ds_dphp = 0.
    ds_dthb = 0.
    ds_dphb = 0.
    ds_dE = 0.
    # these derivatives
    for d in data:
        p = d.split(':')
```

Should be: ds_dthe initialized to zero