

- **mkcflow, vmcflow: cooling flow, mekal**

A cooling flow model after Mushotzky & Szymkowiak (*Cooling Flows in Clusters and Galaxies* ed. A. C. Fabian, 1988). This one uses the mekal (or vmekal) model for the individual temperature components and differs from cflow in setting the emissivity function to be the inverse of the bolometric luminosity. The model assumes $H_0 = 50$ and $q_0 = 0$. Abundance ratios are set by the **abund** command. The switch parameter determines whether the mekal code will be run to calculate the model spectrum for each temperature or whether the model spectrum will be interpolated from a pre-calculated table. The former is slower but more accurate.

For the mkcflow model the parameters are:

par1	low temperature (keV)
par2	high temperature (keV)
par3	abundance relative to Solar
par4	(fixed) redshift
	0 \Rightarrow calculate
par5	1 \Rightarrow interpolate
	2 \Rightarrow interpolate using APEC model
norm	Mass accretion rate (solar mass/yr)

While for the vmcflow variant the parameters are:

par1	low temperature (keV)
par2	high temperature (keV)
par3-par16	Abundances for He, C, N, O, Ne, Na, Mg, Al, Si, S, Ar, Ca, Fe, Ni wrt Solar (given by the Anders & Grevesse mixture)
par17	Redshift
	0 \Rightarrow calculate
par18	1 \Rightarrow interpolate
	2 \Rightarrow interpolate using APEC model

norm Mass accretion rate (solar mass/yr)

