abstract We review the next generation Japanese infrared space mission, ASTRO-F. ASTRO-F will be the first survey of the entire sky at infrared wavelengths since the IRAS mission almost 20 years ago. ASTRO-F will survey the entire sky in 4 far-infrared bands from 50-200microns and 2 mid-infrared bands at 9 and 20microns to sensitivities of 10-1000 times deeper than the IRAS satellite at angular resolutions of 25-45arcsec (c.f. IRAS 2-5arcmins). ASTRO-F can be considered a SUPER-IRAS. Using the galaxy evolution model of Pearson (2001) we produce expected numbers of sources under 3 different cosmological world models. We predict that ASTRO-F will detect of the order of 10’s millions of sources in the far-infrared wavelength bands, most of which will be dusty LIG/ULIGs of which as many as half will lie at redshifts greater than unity. We produce number-redshift distributions, flux-redshift and colour-colour diagrams for the survey and discuss various segregation and photometric redshift techniques. Furthermore, we investigate the large scale structure scales that will be accessed by ASTRO-F, discovering that ASTRO-F and SIRTF-SWIRE probe both different scales and redshift domains and concluding that the 2 missions will supplement rather than supplant one another.