The film ionogram acquired by analogue ionosonde is the oldest data in the history of ionospheric observation. It is believed that more than 200 million ionogram film images which cover 60 years are kept in the World Data Centers and some Institutes in the world. By using digital technology to rescue these film ionogram has become more and more important and urgent nowadays. In this paper, we present a work on rescuing and processing several decades film ionogram observed at Wuhan Ionospheric Observatory, China. It consist of four main steps: ( 1 ) Scanning film ionogram images into computer with electronic format; ( 2 ) Acquiring individual ionogram image which reserve the observing time, frequency and virtual height etc. information; ( 3 ) Converting the ionogram image into digital ionogram with conventional format; ( 4 ) Autoscaling and inverting the digital ionogram to get ionospheric parameters and electron density profile. In these work, the step one should be used with scanner by manual operation. In other steps, we can use some special software to process automatically or semiautomatically. The most important feature of our method is that not only to archive film ionogram with digital format but also get ionospheric parameters and electron density profile with present digital ionogram analysis techniques. So it will provides a positive solution in digitalization and analysis of huge amount of historical film ionogram data.