= Automated Tropical Cyclone Forecasting System =

The Automated Tropical Cyclone Forecasting System (ATCF) is a piece of software originally developed to run on a personal computer for the Joint Typhoon Warning Center (JTWC) in 1988 , and the National Hurricane Center (NHC) in 1990 . ATCF remains the main piece of forecasting software used for the United States Government , including the JTWC , NHC , and Central Pacific Hurricane Center . Other tropical cyclone centers in Australia and Canada developed similar software in the 1990s . The data files with ATCF lie within three decks , known as the a- , b- , and f @-@ decks . The a @-@ decks include forecast information , the b @-@ decks contain a history of center fixes at synoptic hours , and the f @-@ decks include the various fixes made by various analysis center at various times . In the years since its introduction , it has been adapted to Unix and Linux platforms .

= = Reason for development = =

The need for a more modernized method for forecasting tropical cyclones had become apparent by the mid @-@ 1980s . At that time Department of Defense was using acetate , grease pencils , and disparate computer programs to forecast tropical cyclones . The ATCF software was developed by the Naval Research Laboratory for the Joint Typhoon Warning Center (JTWC) beginning in 1986 , and used since 1988 . During 1990 the system was adapted by the National Hurricane Center (NHC) for use at the NHC , National Centers for Environmental Prediction and the Central Pacific Hurricane Center . This provided the NHC with a multitasking software environment which allowed them to improve efficiency and cut the time required to make a forecast by 25 % or 1 hour . ATCF was originally developed for use within DOS , before later being adapted to Unix and Linux .

= = Data decks used = =

An a @-@ deck is a data file that contains a listing of available forecast aid projections for a storm 's history . The real @-@ time guidance system uses a subset of the track and intensity information contained in these files to create the real @-@ time guidance plots . The a @-@ deck name comes from the fact that the filenames start with an " a " . Normally , all the model projections are included for the entire lifetime of the storm , so these files can increase to around 1 megabyte in size .

A b @-@ deck is a data file that contains the history of past storms ' center locations , intensity , and other parameters at the six hourly synoptic times : 0000 , 0600 , 1200 , and 1800 UTC . The files can contain information outside of synoptic hours , such as the time of landfall . During hurricane season , these files contain the best operational estimates of these parameters , and are known as the operational best tracks . Once the season has completed , the files are updated with revised information after the storm history undergone a careful review by forecasters and other experts . The post @-@ season files are known as the best tracks . The real @-@ time portion of this web site will always feature the operational best tracks (the ones which have not undergone any review) .

An f @-@ deck is a data file that contains a record of the fixes of a storm 's location and / or intensity . A location fix is any position estimate of the storm center . An intensity fix is any estimate of the storm 's intensity . Both location and intensity fixes can be obtained by aircraft flying low @-@ level penetrations through the storm center . Various methods that use satellite imagery or other remote sensing can also provide location and intensity fixes .

= = System identification = =

Systems within ATCF are identified with the basin prefix (AL , CP , EP , IO , SH , SL , WP) and then followed by two digit number between 00 and 49 for active tropical cyclones , which becomes incremented with each new system , and then the year associated with the system . Numbers from 50 through 79 after the basin acronym are used internally by the basin 's respective Tropical

Cyclone Warning Centers and Regional Specialized Meteorological Center . Numbers in the 80s are used for training purposes and can be reused . Numbers in the 90s are used for areas of interest , sometimes referred to as invests or areas of disturbed weather , and are also reused within any particular year . Their status is listed the following ways within the associated data file : DB - disturbance , TD - tropical depression , TS - tropical storm , TY - typhoon , ST - super typhoon , TC - tropical cyclone , HU - hurricane , SD - subtropical depression , SS - subtropical storm , EX - extratropical systems , IN - inland , DS - dissipating , LO - low , WV - tropical wave , ET - extrapolated , and XX - unknown . Times used are in a four digit year , month , day , and hour format .

= = Similar software used elsewhere = =

In the 1990s , other countries developed similar tropical cyclone forecasting software . The Bureau of Meteorology in Australia developed the Australian Tropical Cyclone Workstation . The Canadian Hurricane Centre developed Canadian Hurricane Centre Forecaster 's Workstation .