FEDERAL AVIATION ADMINISTRATION (FAA)
AVIATION SYSTEM STANDARDS (AVN)
NATIONAL AERONAUTICAL CHARTING OFFICE (NACO)

DIGITAL AERONAUTICAL INFORMATION (DAI)

DIGITAL OBSTACLE FILE (DOF)
CD_DOF_README.PDF FILE
Revision 1.6 – January 14, 2004
Revision 1.5 – CD_DOF_README.TXT to CD_DOF_README.PDF
Revision 1.5 – Change to File Format
Revision 1.6 – Minor Change to New Format

FOR THE DOF, THE CD-ROM RECEIVED WITH THIS DELIVERY INCLUDES:

1. CD_DOF_README.PDF - This file which provides an overview of the Digital Obstacle File (DOF) package, and the format for the data files included in the package.

2. The digital data for 9 FAA Regions plus some areas of Canada, Mexico, Caribbean, Bahamas, the Pacific, and a change list reflecting actions taken since the last currency date, in an uncompressed file format.

3. DAI_DATCHK.EXE - A program for checking the data integrity of the DAI data files.

4. CHKALL_DOF.EXE - A program for checking the data integrity on all DOF files in the same folder as the program.

5. BROWSE.EXE - A program used to only view ASCII text files.

********** IMPORTANT NOTE **********

FOR EVERY CD-ROM DELIVERY,
BEFORE COPYING THE FILES AND FOLDERS TO YOUR COMPUTER,
CHECK THE EFFECTIVE DATES FOR THE DATA AND
DELETE ALL FILES AND FOLDERS FROM ANY PREVIOUS CYCLE.

****

CAUTION

```
**************************************************************************
* The Digital Obstacle File contains only obstruction data for those    *
* man-made objects which affect domestic aeronautical charting products *
* and does not purport to indicate the presence of all obstructions     *
* which may be encountered.                                             *
*                                NOTE                                   *
*                                                                       *
* In the interest of air safety, the Digital Obstacle File depicts both *
* "verified" and "unverified" obstruction data.  A verified obstruction *
* is indicated by an "O" in the verification status field of the data.  *
* This data has been reviewed by the FAA's National Aeronautical        *
* Charting Office (NACO) and most have been assigned an accuracy code,  *
* indicating the reliability of its vertical height and horizontal      *
* position.  An unverified obstruction is indicated by a "U" in the     *
* status field of the data.  This data is considered unreliable because *
* its position and height have not been verified by NACO.  Caution      *
* should be exercised by the user of unverified data.                   *
**************************************************************************
```

Please refer to CD_DAI_README.PDF in the DAI folder of the DAI CD for:

- DAI CONTACT INFORMATION (Phone Numbers and Addresses)
- INSTRUCTIONS FOR VIEWING THE DATA FILES
- ISO 9660
- DAI CD-ROM FOLDER ORGANIZATION
- USING THE DAI DATA
- SPACE REQUIREMENTS
- COPYING THE DATA FILES AND PROGRAMS TO A PC
- ERROR CHECKING (DAI_DATCHK.EXE, CHKALL_DOF)
- BROWSE PROGRAM INSTRUCTIONS

List of DOF Data Files:

ANE.DAT	New England Region data
	07 Connecticut
	20 Maine
	22 Massachusetts
	30 New Hampshire
	40 Rhode Island
	46 Vermont
AEA.DAT	Eastern Region data
	08 Delaware
	09 DC
	21 Maryland
	31 New Jersey
	33 New York
	39 Pennsylvania
	47 Virginia
	49 West Virginia

ASO.DAT Southern Region data
- 01 Alabama
- 10 Florida
- 11 Georgia
- 18 Kentucky
- 25 Mississippi
- 34 North Carolina
- 41 South Carolina
- 43 Tennessee
- 53 Caribbean
- 56 Puerto Rico

AGL.DAT Great Lakes Region data
- 14 Illinois
- 15 Indiana
- 23 Michigan
- 24 Minnesota
- 35 North Dakota
- 36 Ohio
- 42 South Dakota
- 50 Wisconsin

ACE.DAT Central Region data
- 16 Iowa
- 17 Kansas
- 26 Missouri
- 28 Nebraska

ASW.DAT Southwest Region data
- 04 Arkansas
- 19 Louisiana
- 32 New Mexico
- 37 Oklahoma
- 44 Texas

ANM.DAT Northwest Mountain Region data
- 06 Colorado
- 13 Idaho
- 27 Montana
- 38 Oregon
- 45 Utah
- 48 Washington
- 51 Wyoming

AWP.DAT Western-Pacific Region data
- 03 Arizona
- 05 California
- 12 Hawaii
- 29 Nevada
- 55 Pacific

AAL.DAT Alaskan Region data
- 02 Alaska

OTH.DAT Canada, Mexico and Bahamas data
- 52 Canada
- 54 Mexico

57 Bahamas

CHG.DAT Change List - Actions taken since last currency date

DIGITAL OBSTACLE FILE

FOREWORD

The Digital Obstacle File (DOF) is a listing of verified and unverified obstacles in the U.S. with limited coverage of the Pacific, the Caribbean, Canada, Mexico, Bahamas of interest to aeronautical information users. The obstacles are assigned unique alphanumerical identifiers and are listed in order by ascending latitude within each state in each region. The acronym NOS in the column header for state code or study number appearing in older DOF documentation referred to the Federal agency NACO belonged to prior to its move to the FAA in October 2000. They are now referred to as NACO numbers. The DOF digital product is updated every 56 days.

Included with the DOF delivery is a CHANGE LIST reflecting changes that occurred during the eight week period. This file is ordered by ascending file number. The two file formats are included on the following pages.

```
*****************************************************************
*                        SPECIAL NOTICE:                        *
*     Important Information on Horizontal and Vertical Datums   *
*                                                               *
* As of July 29, 1992 all geographical coordinates in the NACO  *
* Digital Obstruction File have been refined and converted to   *
* the North American Datum of 1983 (NAD83).  The 'Aviation      *
* Safety and Capacity Expansion Act of 1990' mandates that all  *
* positional data used in the National Airspace System be       *
* converted from NAD27 to NAD83.  This adjustment is required   *
* so that US civil aeronautical charts and databases will be    *
* compatible with new navigation systems and equivalent to      *
* datums used by the US military and foreign governments.  For  *
* charting purposes the North American Datum of 1983 (NAD 83)   *
* is considered equivalent to World Geodetic System 1984 (WGS 84).*
*                                                               *
* The North American Vertical Datum of 1988 (NAVD88) replaces the *
* National Geodetic Vertical Datum of 1929 (NGVD 29) as the     *
* official civilian vertical datum for surveying and mapping    *
* activities in the United States for all federal agencies.  All *
* obstacle data identified with a Julian Date on or after "A1071" *
* (the 71st day of 2001, see explanation of Julian Dates below)  *
* will be placed in the North American Vertical Datum of 1988   *
* (NAVD88).  All other elevations in the NACO Digital Obstacle   *
* File are in the National Geodetic Vertical Datum of 1929.      *
*****************************************************************
```

YEAR FORMAT FOR JULIAN DATES IN THE 21ST CENTURY (YEAR 2000 AND GREATER)

A revision was made to the Julian date field to comply with YEAR 2000 (Y2K) issues. The numeric, 5-digit field (YYDDD) changed to an alphanumeric, 5-character field. The new format has a distinctive letter to indicate Y2K compliance. The first character of the Julian date (jdate) field is a letter. The remaining four characters are numeric. The sequence begins with A0001 = January 1, 2000.
It will continue with:

A1001 = January 1, 2001
A2001 = January 1, 2002
A3001 = January 1, 2003
.
.
A9001 = January 1, 2009
.
.
B0001 = January 1, 2010

DATA FORMAT CHANGE TO OBSTACLE IDENTIFIERS

A revision has been made in the obstacle number field of the Digital Obstacle File (DOF). Alphanumeric obstacle identifiers are now allowed in this data field. This revision was necessary because no capability existed for adding numbers larger than 9999. The database structure does not allow a five character obstacle number. Therefore, it is necessary to use the alphanumeric to symbolize numbers larger than 9999. Starting at the number 10,000, symbolized by A000, the numbering will continue with obstacle 10,001 symbolized by A001. The sequence continues in the following manner: A000 - A999, B000 - B999,...Z000 - Z999. This allows for the addition of future obstacles into the DOF.

** FORMAT FOR DATA IN THE DIGITAL OBSTACLE FILES **

NOTE: The following pages describe the format for headers and data in the Digital Obstacle data files.

THE DOF FORMAT

For each region, the currency date header appears on line 1, in columns 3-26, followed by a 3-line header. Line 4 contains 115 "-" characters. Lines 2 and 3 are column headers for the obstacle detail lines.

There is a DATCHK code at the end of every line in the file.

The data for each obstacle is in the following format:

Column	Data Element	Description
1-2	NACO State Code (was NOS State Code)	State 01 Alabama 02 Alaska 03 Arizona 04 Arkansas 05 California 06 Colorado 07 Connecticut 08 Delaware 09 DC 10 Florida 11 Georgia 12 Hawaii 13 Idaho 14 Illinois 15 Indiana 16 Iowa 17 Kansas 18 Kentucky 19 Louisiana 20 Maine 21 Maryland 22 Massachusetts 23 Michigan 24 Minnesota 25 Mississippi 26 Missouri 27 Montana 28 Nebraska 29 Nevada 30 New Hampshire 31 New Jersey 32 New Mexico 33 New York 34 North Carolina 35 North Dakota 36 Ohio 37 Oklahoma 38 Oregon 39 Pennsylvania 40 Rhode Island 41 South Carolina 42 South Dakota 43 Tennessee 44 Texas 45 Utah 46 Vermont 47 Virginia 48 Washington 49 West Virginia 50 Wisconsin 51 Wyoming 52 Canada 53 Caribbean 54 Mexico

		55 Pacific 56 Puerto Rico 57 Bahamas
3	"-"	
4-7	Obstacle Number	Identifier of obstacle
8	Blank	
9	"O" or "U"	Verification Status "O": verified "U": unverified
10	Blank	
11-12	State Identifier	State
13	Blank	
14-28	City Name	City
29	Blank	
30-31	Latitude Degrees	Geographical Coordinates
32	Blank	
33-34	Latitude Minutes	"
35	Blank	
36-40	Latitude Seconds	"
41	Latitude Hemisphere	"
42-43	Blank	
44-46	Longitude Degrees	"
47	Blank	
48-49	Longitude Minutes	"
50	Blank	
51-55	Longitude Seconds	"
56	Longitude Hemisphere	"
57-58	Blank	
59-67	Obstacle Type	1. Arch 15. Plant 2. Balloon 16. Pole 3. Bridge 17. Rig

		4. Bldg 18. Refinery 5. Bldg-Twr 19. Sign 6. Catenary 20. Spire 7. Cool TWR 21. Stack 8. Crane 22. Stacks 9. Crane T 23. Tank 10. Ctrl Twr 24. T-L Twr 11. Dam 25. Tower 12. Dome 26. Towers 13. Elevator 27. Tramway 14. Monument 28. Windmill
68	Blank	
69-72	Frequency	Charted AM station frequency
73	Blank	
74-77	AGL HT	Above Ground Level Height (Feet)
78	Blank	
79-83	AMSL HT	Above Mean Sea Level Height (Feet)
84-85	Blank	
86	Strobe Indicator	Type of Lighting "S": High Intensity White Strobe Lighting "M": Medium Intensity White Strobe Lighting "R": Red Lighting "H": Dual, Red with HIGH Intensity White Strobe "D": Dual, Red with MEDIUM Intensity White Strobe "F": Flood Lights "N": No Lights "L": Other, Lighting not listed above
87-90	Blank	
91,93	Accuracy H V	Horizontal, Vertical Accuracy

HORIZONTAL		VERTICAL	
Code	Tolerance	Code	Tolerance
1	+-20'	A	+-3'
2	+-50'	B	+-10'
3	+-100'	C	+-20'
4	+-250'	D	+-50'
5	+-500'	E	+-125'
6	+-1000'	F	+-250'
7	+-1/2 NM	G	+-500'

			8	+-1 NM	H	+-1000'
			9	Unknown	I	Unknown

92	Blank	
94-97	Blank	
98	Mark Indicator "Y" or "N"	Painted/Marked Yes or No
99-100	Blank	
101-108	FAA Study Number or NACO Source Code (was NOS Source Code)	NACO Source Code (when FAA study number is not available)

99CF0000	7610 Form
99AM0000	FCC AM List
99FM0000	FCC FM List
99FC0000	Flight Check
99SP0000	Stereoplot
99IP0000	IAP Procedures
99VR0000	Visual Reported
99LR0000	Letter Reported
99TR0000	Telephone Reported
99MS0000	MSAW Reported
99OC####	OC Charts
99HC0000	Horizontal Ctrl Data
99LM0000	Landmark for Charts
99DM0000	National Imagery and Mapping Agency (NIMA) Reported

109	Blank	
110-115	Action: A, C, D, Julian Date	Add, Change, Dismantle, Date of Action
116	Blank	
117-122	DATCHK Code	Data Integrity code

THE CHANGE LIST FORMAT

Lines 1 and 2 are column headers for the detail lines. Line 3 contains 114 "-" characters.

There is a DATCHK code at the end of every line in the file.

The data for each change is in the following format:

Column	Data Element	Description
1-2	Blank	
3-11	Action	DISMANTLE, OLD, NEW, ADD, REMOVE
12	Blank	
13-14	NACO State Code (was NOS State Code)	(See DOF Format)
15	"-"	
16-19	Obstacle Number	"
20	Blank	
21	"O" or "U"	"
22	Blank	
23-37	City Name	"
38-39	Latitude Degrees	"
40	Blank	
41-42	Latitude Minutes	"
43	Blank	
44-48	Latitude Seconds	"
49	Latitude Hemisphere	"
50	Blank	
51-53	Longitude Degrees	"
54	Blank	
55-56	Longitude Minutes	"
57	Blank	
58-62	Longitude Seconds	"
63	Longitude Hemisphere	"
64	Blank	
65-73	Obstacle Type	"
74	Blank	

75-78	Frequency	"
79	Blank	
80-83	AGL HT	"
84-85	Blank	
86-90	AMSL HT	"
91	Blank	
92	Strobe Indicator	"
93	Blank	
94,96	Accuracy H V	"
95	Blank	
97	Blank	
98	Mark Indicator "Y" or "N"	"
99	Blank	
100-107	FAA Study Number	"
108	Blank	
109-114	Action: A, C, D, R Julian Date	Add, Change, Dismantle, Remove, Date of Action
115-116	Blank	
117-122	DATCHK Code	Data Integrity code