



**JEBBESEN**<sup>®</sup>

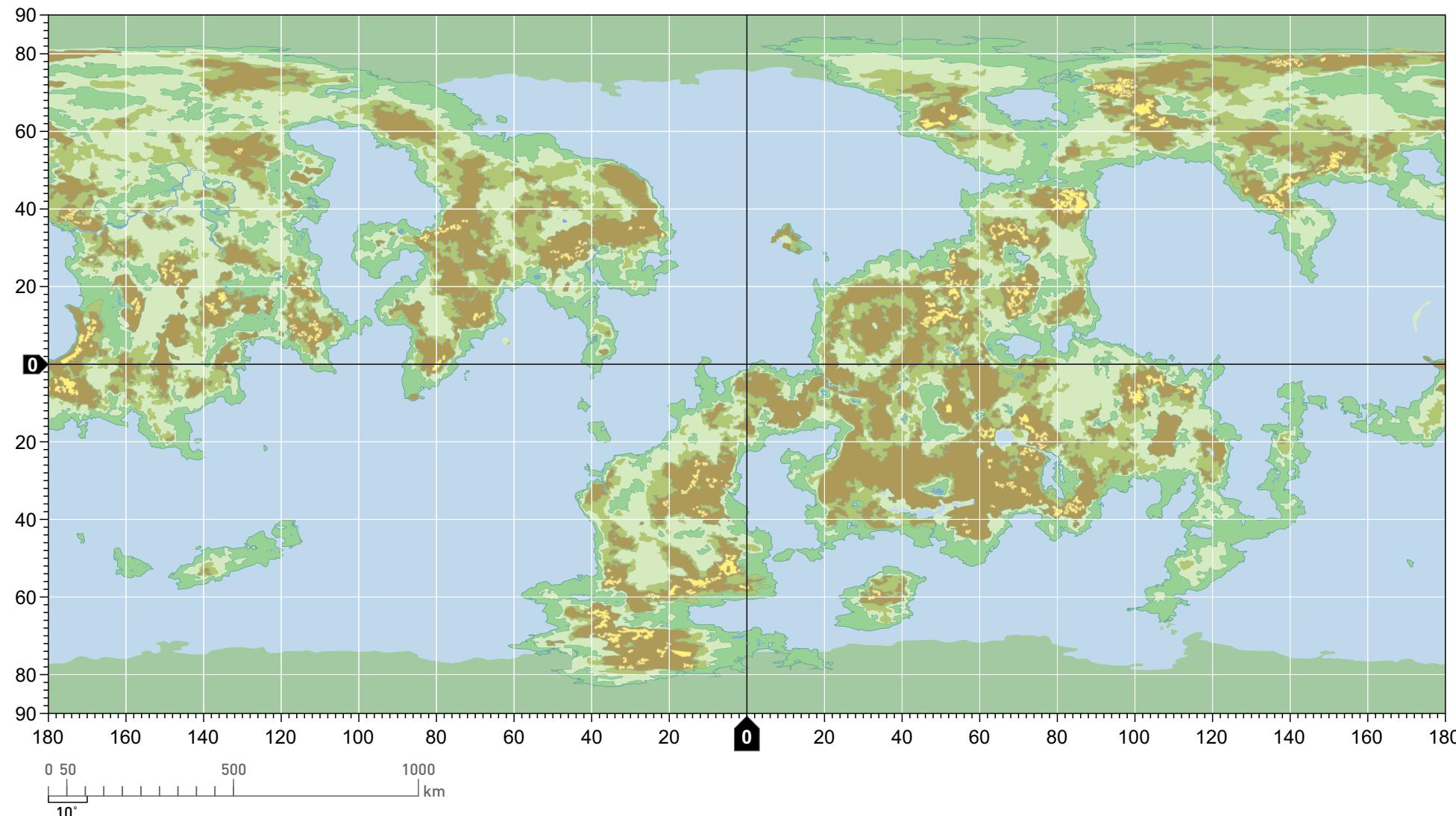
AN ASET COMPANY

# AERONAUTICAL CHARTS

KERBAL SPACE PROGRAM  
KERBIN, 2016

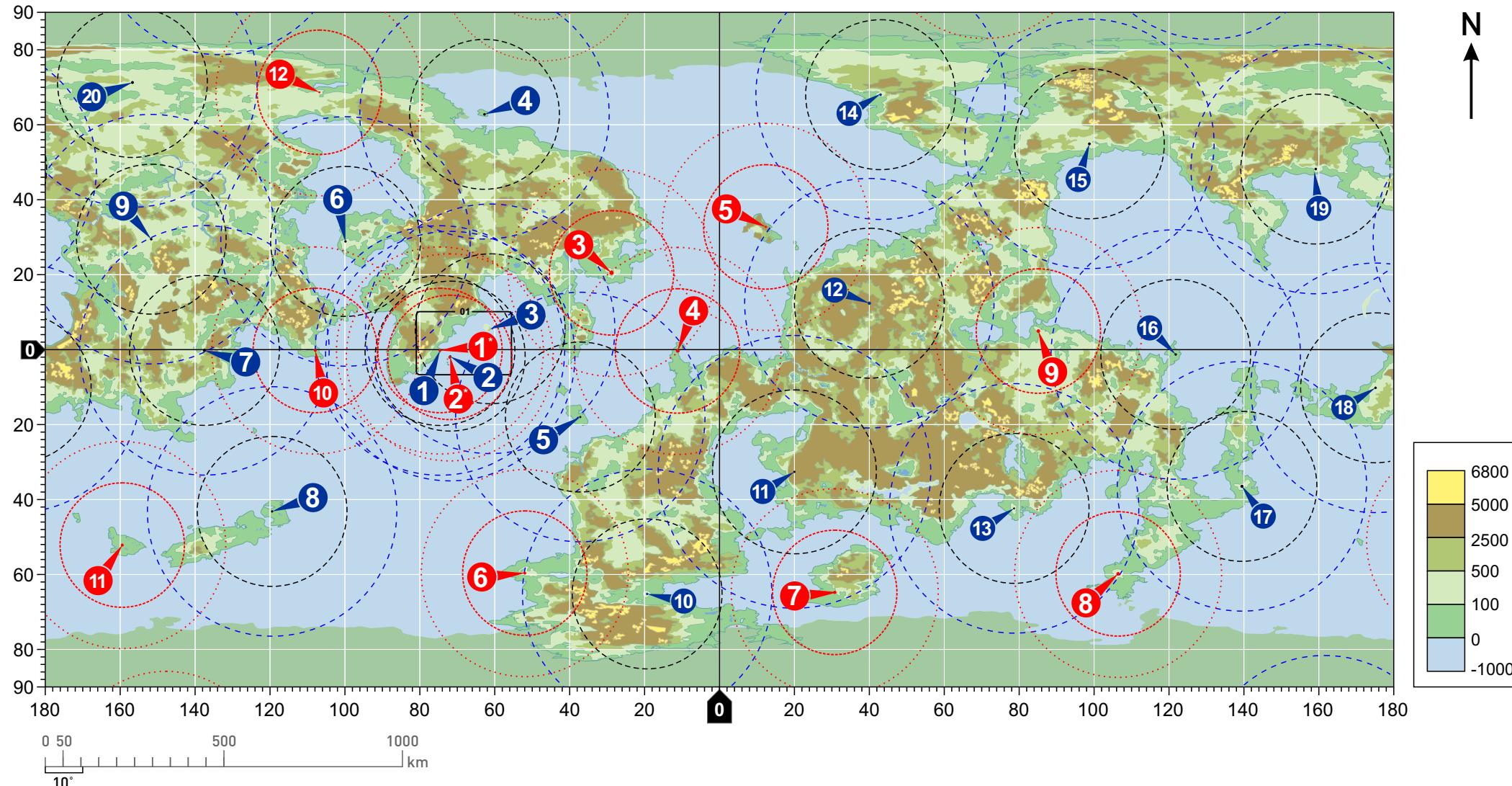
# KERBIN

## TERRAIN MAP



## KERBIN

## NAVAIDS OVERVIEW



01

\*

- detailed view on pages 2-2, 2-6, 4-1

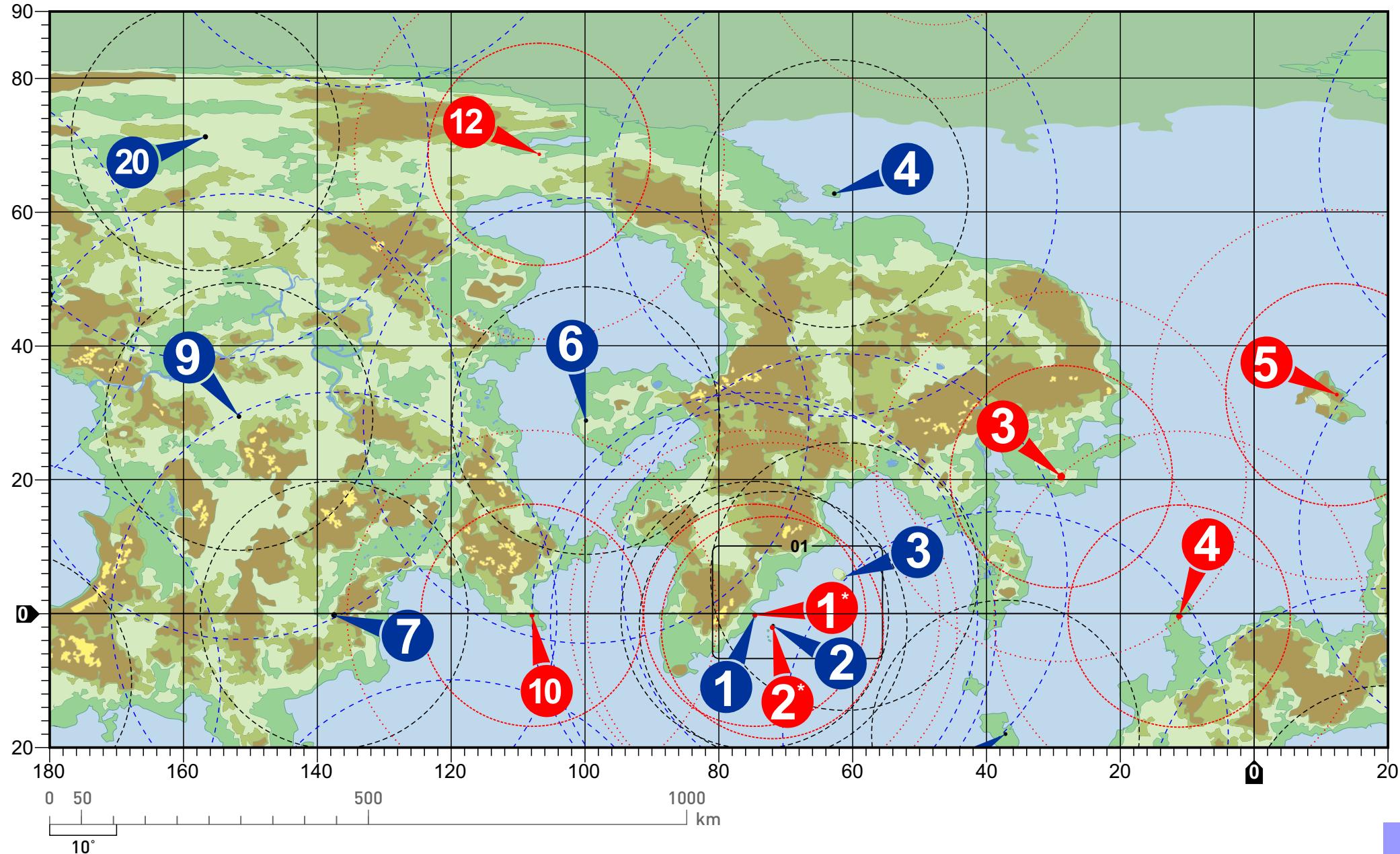
- more than one facilities

Navigation Aid	VOR	DME	NDB
approx range for ALT 5000 m	186 KM	217 KM	155 KM
approx range for ALT 10000 m	263 KM	306 KM	263 KM

2-1

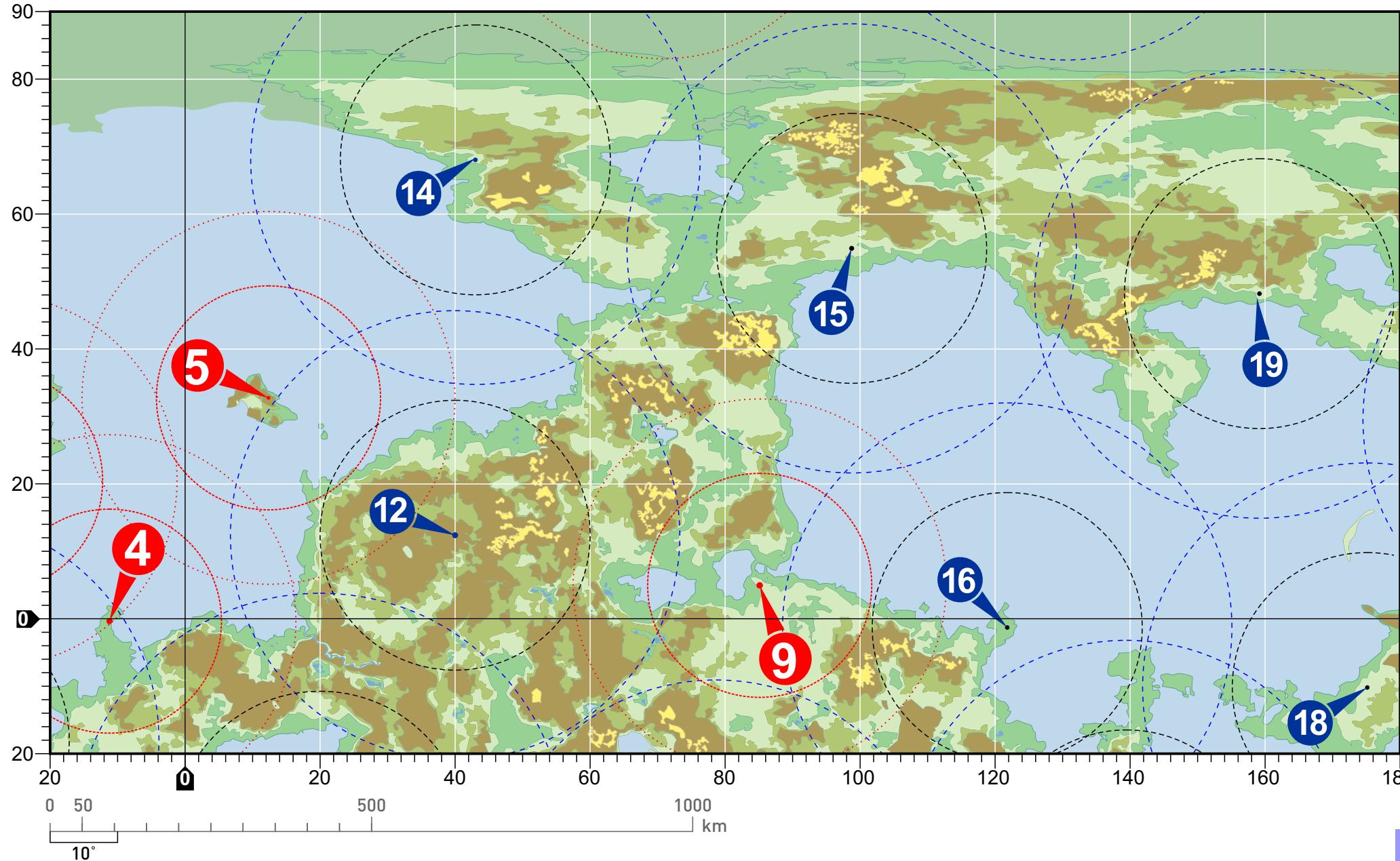
## KERBIN

## NAVAIDS OVERVIEW (NORTH-WEST)



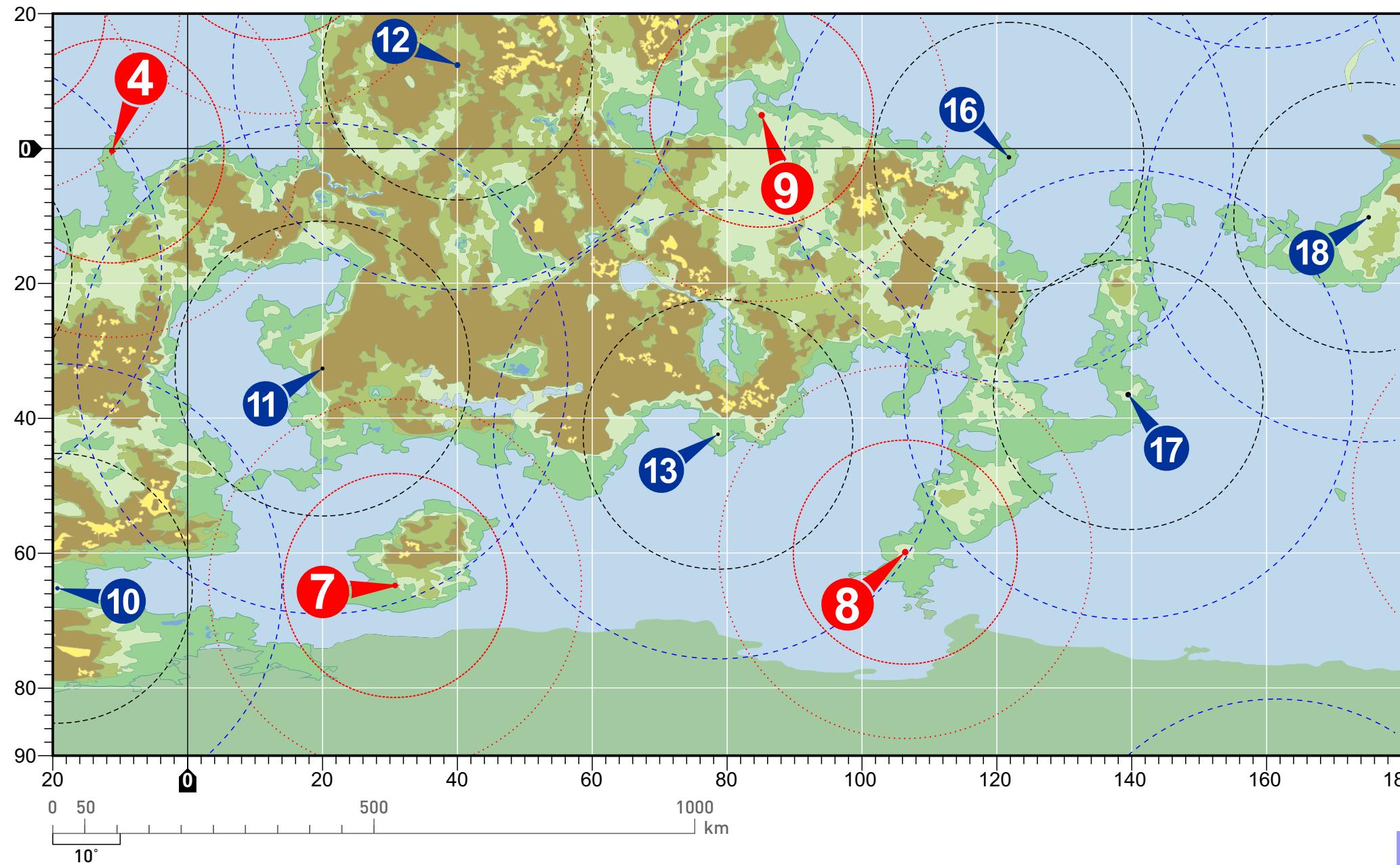
## KERBIN

## NAVAIDS OVERVIEW (NORTH-EAST)



## KERBIN

## NAVAIDS OVERVIEW (SOUTH-EAST)

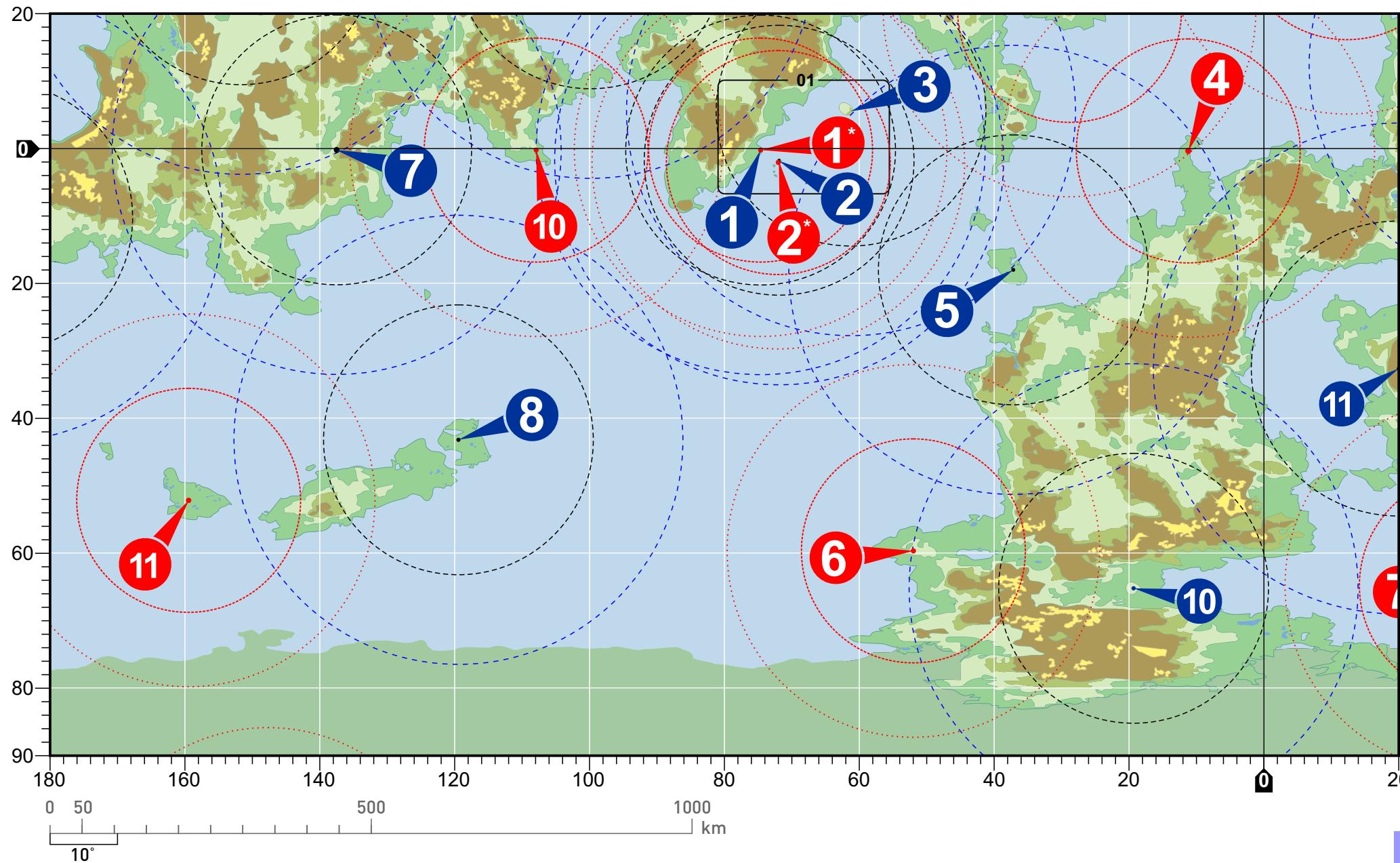


N ↑

2-4

## KERBIN

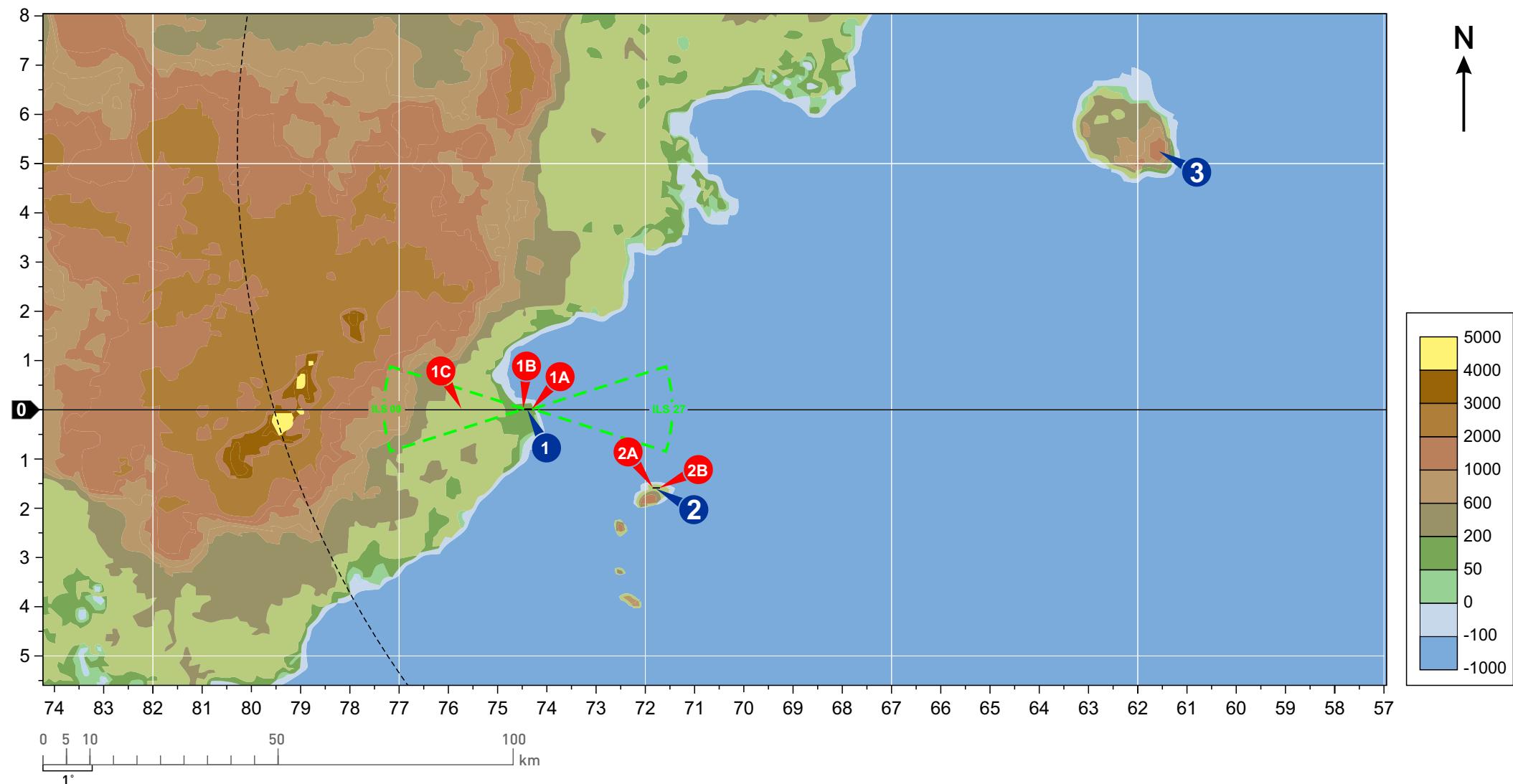
## NAVAIDS OVERVIEW (SOUTH-WEST)



09-feb-2017

## KSC SECTOR

## NAVAIDS



09-feb-2017

## NAVAIDS

## VOR DME

	NAME	ID	FREQUENCY	MORSE CODE	COORDINATES	ALTITUDE		NAME	ID	FREQUENCY	MORSE CODE	COORDINATES	ALTITUDE	
1	CENTER	KST	113.30	--- --- -	0° 03' 01" S 74° 31' 03" W	160		18	NAME 18	ID18	115.40	--- --- -	10° 09' 06" S 176° 30' 23" E	665
2	AIRFIELD	IFT	114.20	... --- ---	1° 31' 24" S 71° 54' 40" W	181.9		19	NAME 19	ID19	114.80	... --- ---	49° 23' 40" N 156° 24' 05" E	999
3	EASTERN	ESI	116.40	. . . . .	5° 37' 26" S 61° 15' 55" W	1442		20	NAME 20	ID20	113.90	. . . . .	70° 11' 29" S 155° 53' 46" W	798
4	NAME 04	ID04	112.10	--- --- -	62° 39' 58" N 62° 48' 14" W	414								
5	NAME 05	ID05	113.50	--- --- -	18° 19' 31" S 37° 02' 45" W	375								
6	NAME 06	ID06	115.10	--- --- -	29° 01' 33" N 99° 45' 21" W	770								
7	NAME 07	ID07	114.70	--- --- -	0° 29' 00" S 136° 33' 36" W	1462								
8	NAME 08	ID08	116.70	--- --- -	43° 00' 02" S 120° 19' 20" W	273								
9	NAME 09	ID09	113.80	--- --- -	30° 04' 50" N 151° 27' 27" W	760								
10	NAME 10	ID10	115.20	--- --- -	64° 49' 09" S 19° 14' 53" W	825								
11	NAME 11	ID11	117.10	--- --- -	31° 33' 10" S 21° 47' 49" E	2136								
12	NAME 12	ID12	114.30	--- --- -	12° 09' 03" N 39° 52' 49" E	1323								
13	NAME 13	ID13	117.60	--- --- -	44° 50' 09" S 78° 35' 46" E	889								
14	NAME 14	ID14	113.10	--- --- -	70° 22' 42" N 41° 25' 07" E	1137								
15	NAME 15	ID15	116.60	--- --- -	54° 17' 40" N 99° 42' 43" E	632								
16	NAME 16	ID16	115.30	--- --- -	1° 19' 06" S 121° 46' 21" E	359								
17	NAME 17	ID17	117.20	--- --- -	36° 45' 37" S 139° 21' 54" E	596								

## NAVAIDS

## NDB DME

	NAME	ID	FREQUENCY	MORSE CODE	COORDINATES	ALTITUDE
1A	KKSC ILS 27	IWE	110.10	.. - - -	0° 03' 01" S 74° 31' 03" W	70
1B	KKSC ILS 09	IKW	108.50	.. - - - -	0° 03' 01" S 74° 31' 03" W	70
1C	BAKOR	SCE	197.00	... - - -	0° 02' 55" S 77° 33' 54" W	745
2A	BASE WEST	IRW	191.00	... - - - -	1° 30' 58" S 71° 58' 53" W	83.4
2B	BASE EAST	IRE	194.00	... - - -	1° 30' 58" S 71° 50' 18" W	97.8
3	NAME 03	Id03	192.00	- - - - -	20° 41' 54" N 28° 47' 03" W	1039
4	NAME 04	Id04	201.00	- - - - -	0° 46' 08" N 10° 24' 54" W	228
5	NAME 05	Id05	208.00	- - - - -	32° 24' 35" N 12° 34' 06" E	2208
6	NAME 06	Id06	211.00	- - - - -	59° 22' 12" S 52° 11' 06" W	530
7	NAME 07	Id07	209.00	- - - - -	64° 22' 48" S 31° 35' 48" E	518
8	NAME 08	Id08	195.00	- - - - -	60° 09' 40" S 106° 23' 30" E	605
9	NAME 09	Id09	198.00	- - - - -	4° 02' 35" N 85° 44' 14" E	476
10	NAME 10	Id10	202.00	- - - - -	0° 15' 49" N 108° 37' 58" W	514
11	NAME 11	Id11	203.00	- - - - -	51° 57' 55" S 159° 27' 20" W	340
12	NAME 12	Id12	210.00	- - - - -	68° 25' 22" N 108° 28' 44" W	747

	ID	FREQUENCY	MORSE CODE	COORDINATES	ALTITUDE

09-feb-2017

## NAVAIDS

## ILS DME AND MARKERS

NAME	ID	FREQUENCY	MORSE CODE	COORDINATES	ALTITUDE	TDZ	DISTANCE
------	----	-----------	------------	-------------	----------	-----	----------

**KERBAL SPACE CENTER (KKSC)***RWY 09*

<b>1</b>	KKSC ILS 09	IKW	<b>110.10</b>	.. --- .	0° 02' 55" S 74° 31' 03" W	70	
	Outer Marker				0° 02' 55" S 75° 29' 31" W	240	8300
	Middle Marker				0° 02' 55" S 74° 49' 26" W	65	1300
	Inner Marker				0° 02' 55" S 74° 44' 49" W	65	500

*RWY 27*

<b>2</b>	KKSC ILS 27	IWE	<b>108.50</b>	.. -----	0° 03' 01" S 74° 06' 30" W	70	
	Middle Marker				0° 03' 01" S 74° 23' 38" W	0	1100
	Inner Marker				0° 03' 01" S 74° 28' 10" W	57	500

**ISLAND AIR FIELD (KAFD)***RWY 09*

<b>3</b>	Inner Marker				1° 30' 58" S 71° 50' 18" W	98	146
----------	--------------	--	--	--	-------------------------------	----	-----

*RWY 27*

<b>4</b>	Inner Marker				1° 30' 58" S 71° 51' 19" W	134	155
----------	--------------	--	--	--	-------------------------------	-----	-----

**JEBBESEN**

09-feb-2017

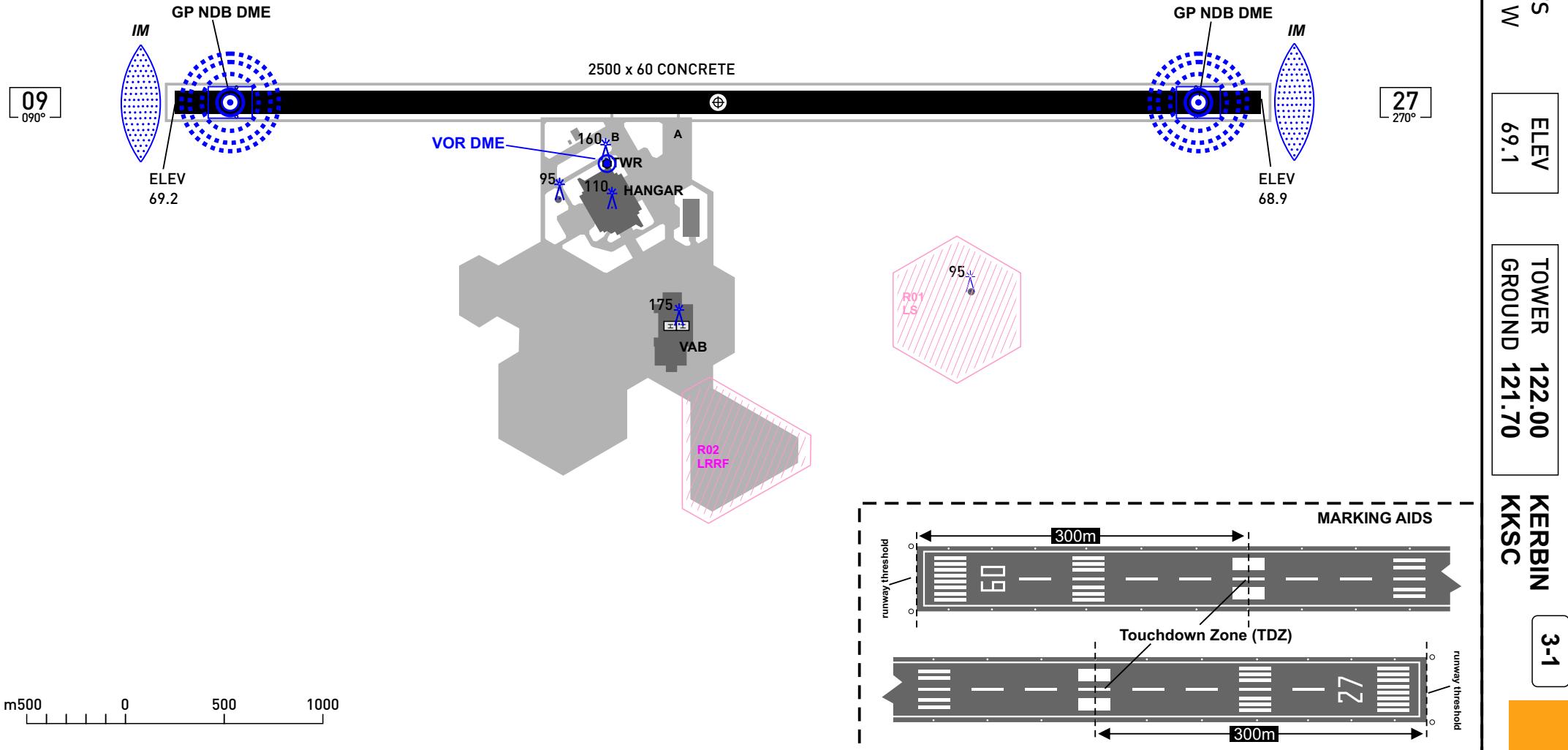
**ELEVATIONS AND  
DIMENSIONS IN METERS**

RWY	DIRECTION	THR
09	89°51'	0°03'01"S 74°29'19" W
27	270°09'	0° 02' 55" S 74°43'42" W

3-1

**AERODROME  
CHART**0°03'00"S  
74°36'27" WELEV  
69.1TOWER  
122.00  
GROUND 121.70KERBIN  
KKSC

3-1



3-2

AERODROME  
CHART

1° 31' 03" S  
71° 54' 40" W

ELEV  
133.7

TOWER  
GROUND 122.00  
121.70

KERBIN  
KAFD

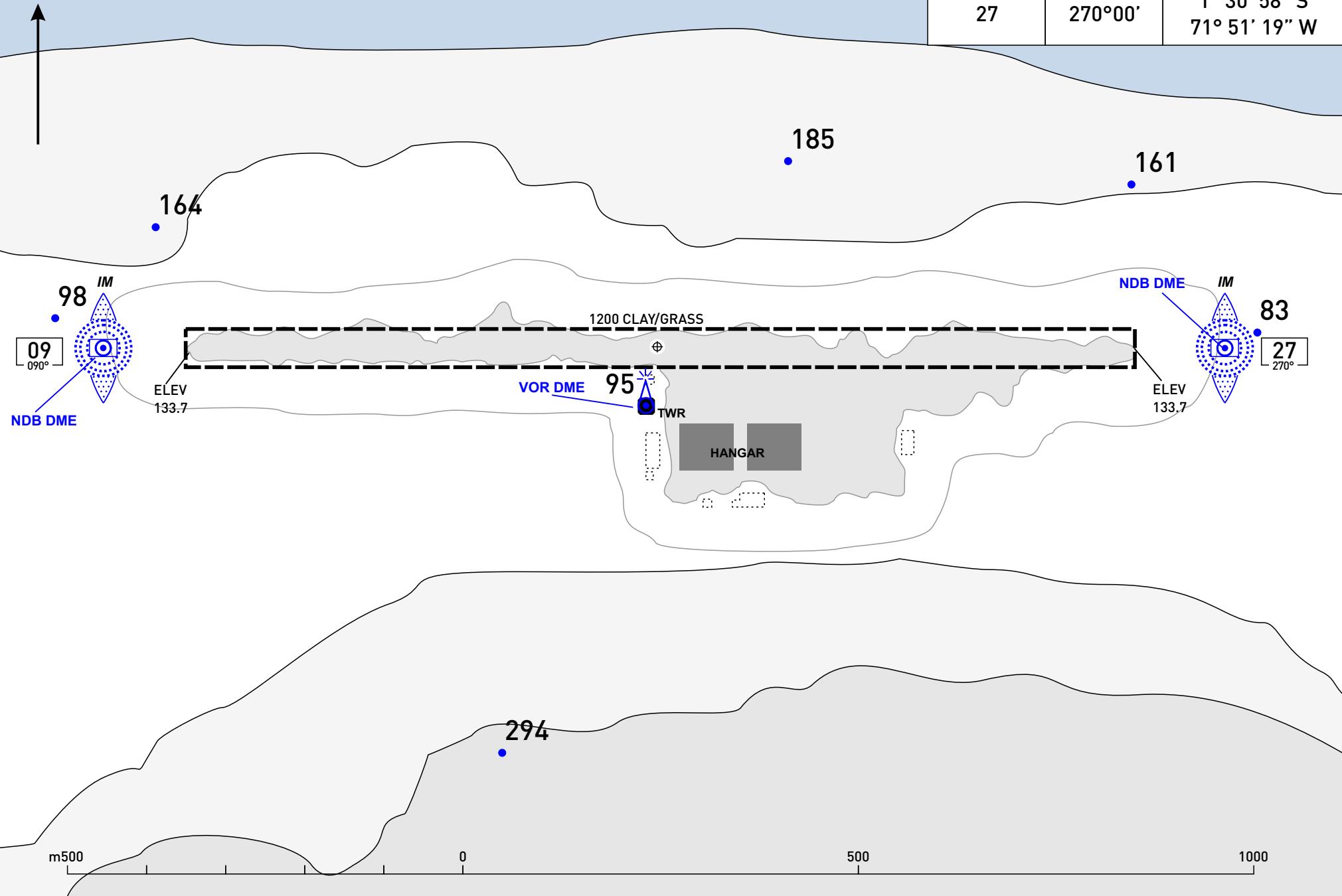
3-2

JEBBESEN

09-feb-2017

ELEVATIONS AND  
DIMENSIONS IN METERS

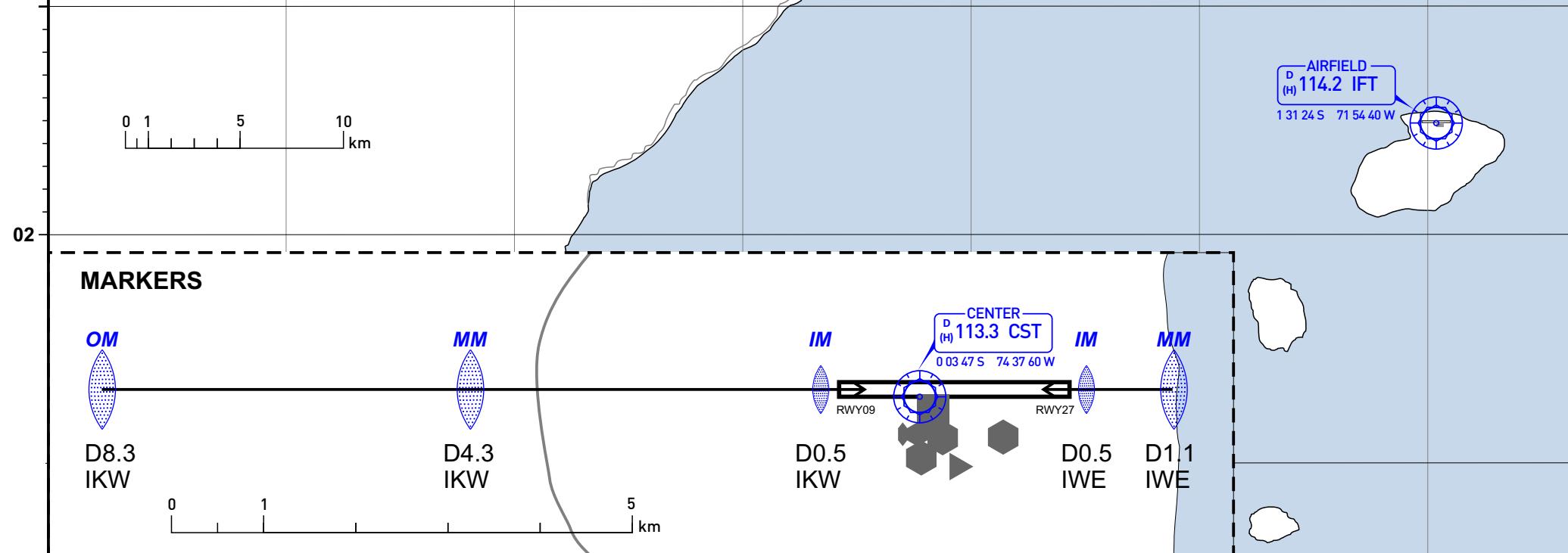
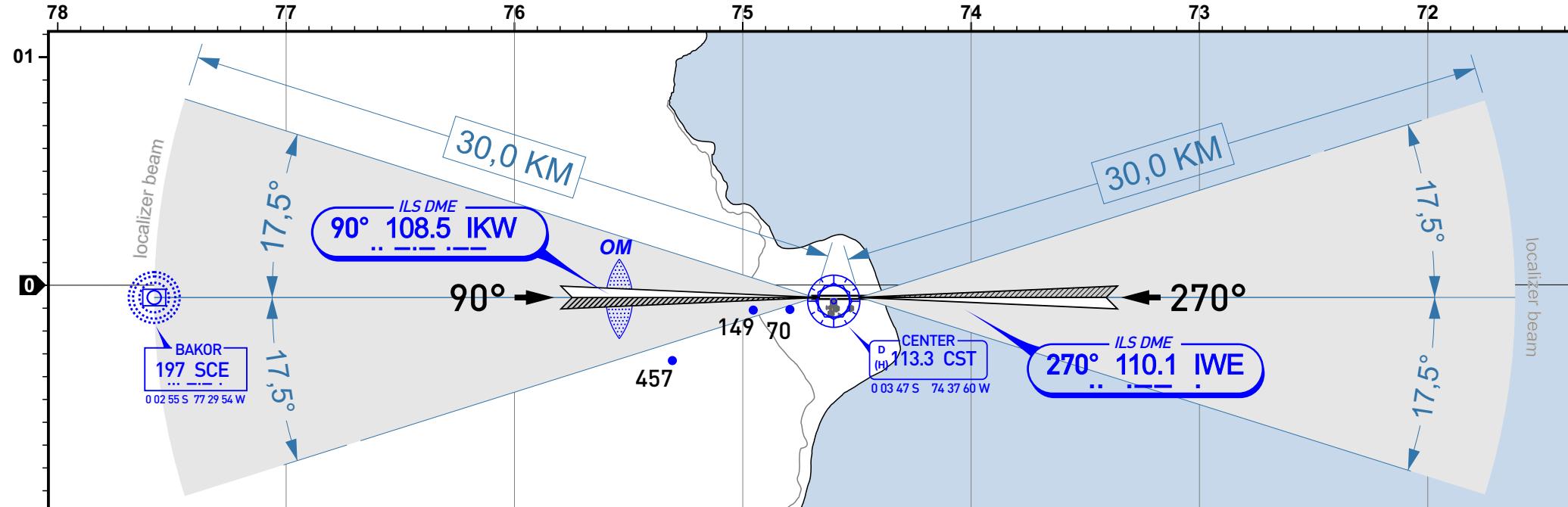
RWY	DIRECTION	THR
09	90°00'	1° 30' 58" S 71° 58' 02" W
27	270°00'	1° 30' 58" S 71° 51' 19" W



JEBBESEN  
09-feb-2017

# KKSC ILS 09, ILS 27 OVERVIEW

4-1



4-1

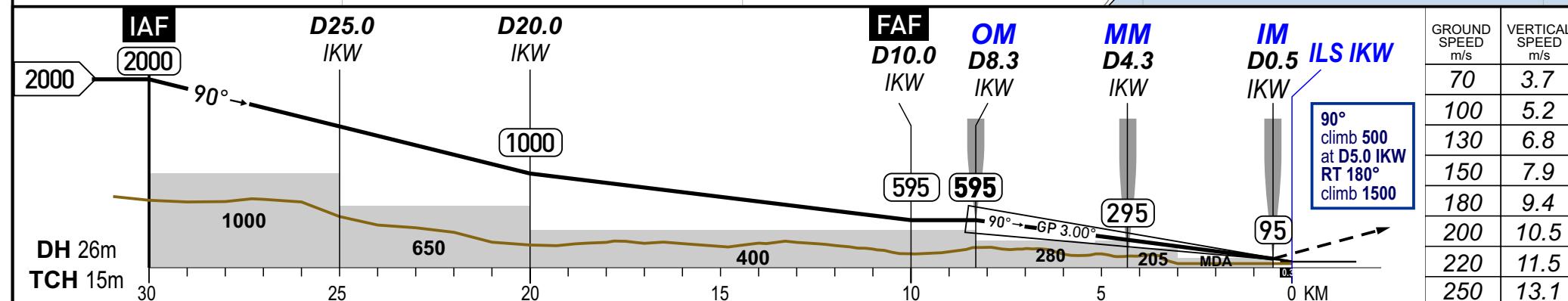
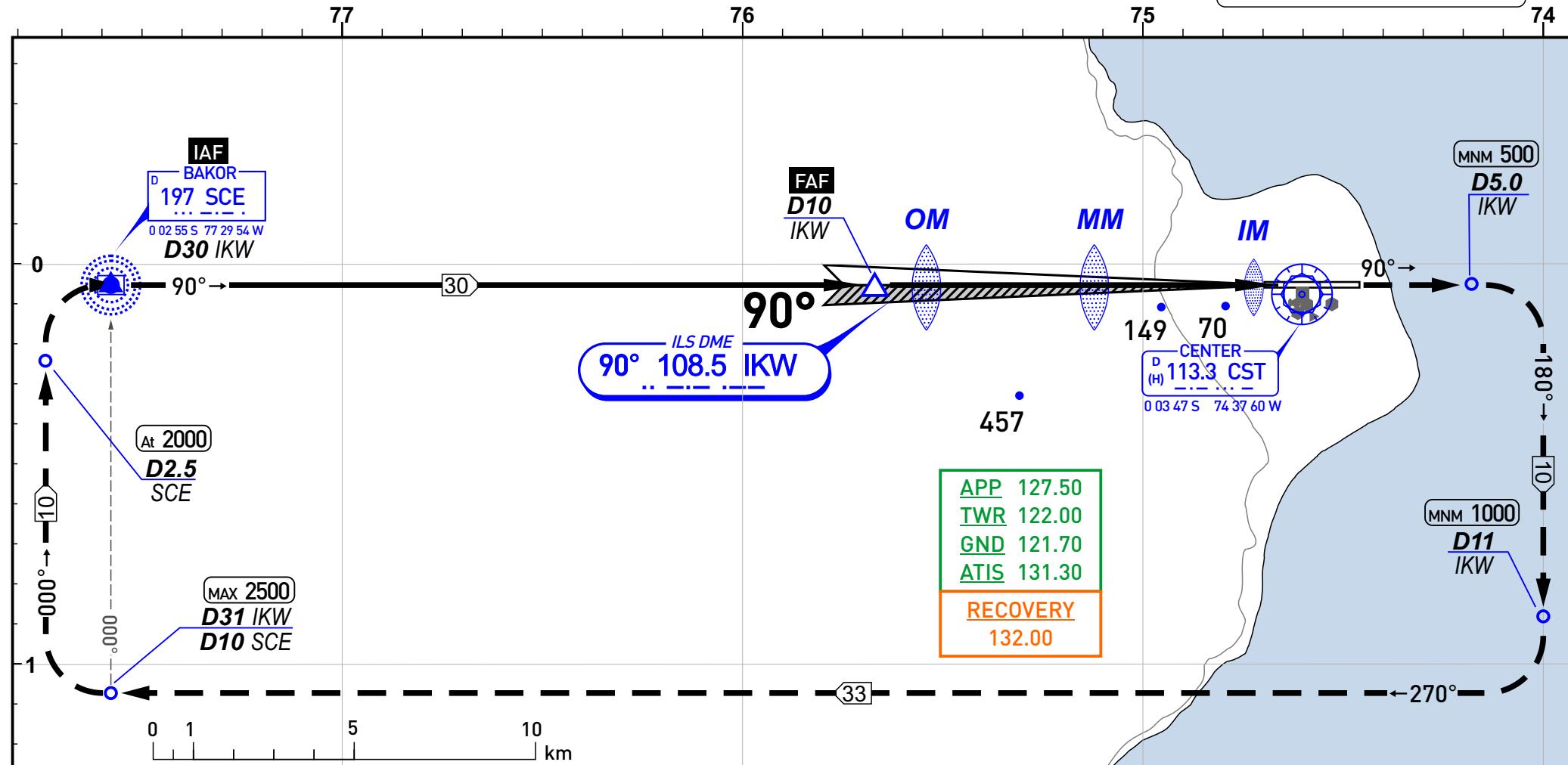
JEBBESEN

09-feb-2017

KKSC

4-2

ILS DME RWY 09



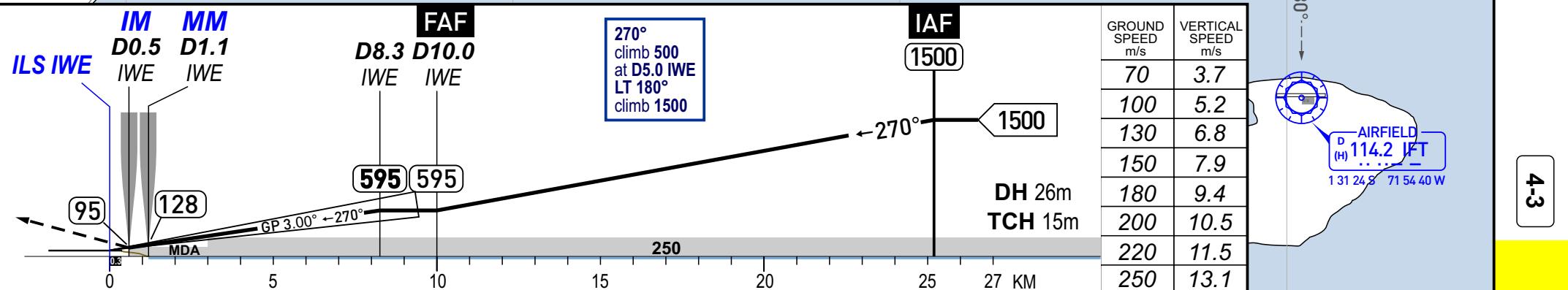
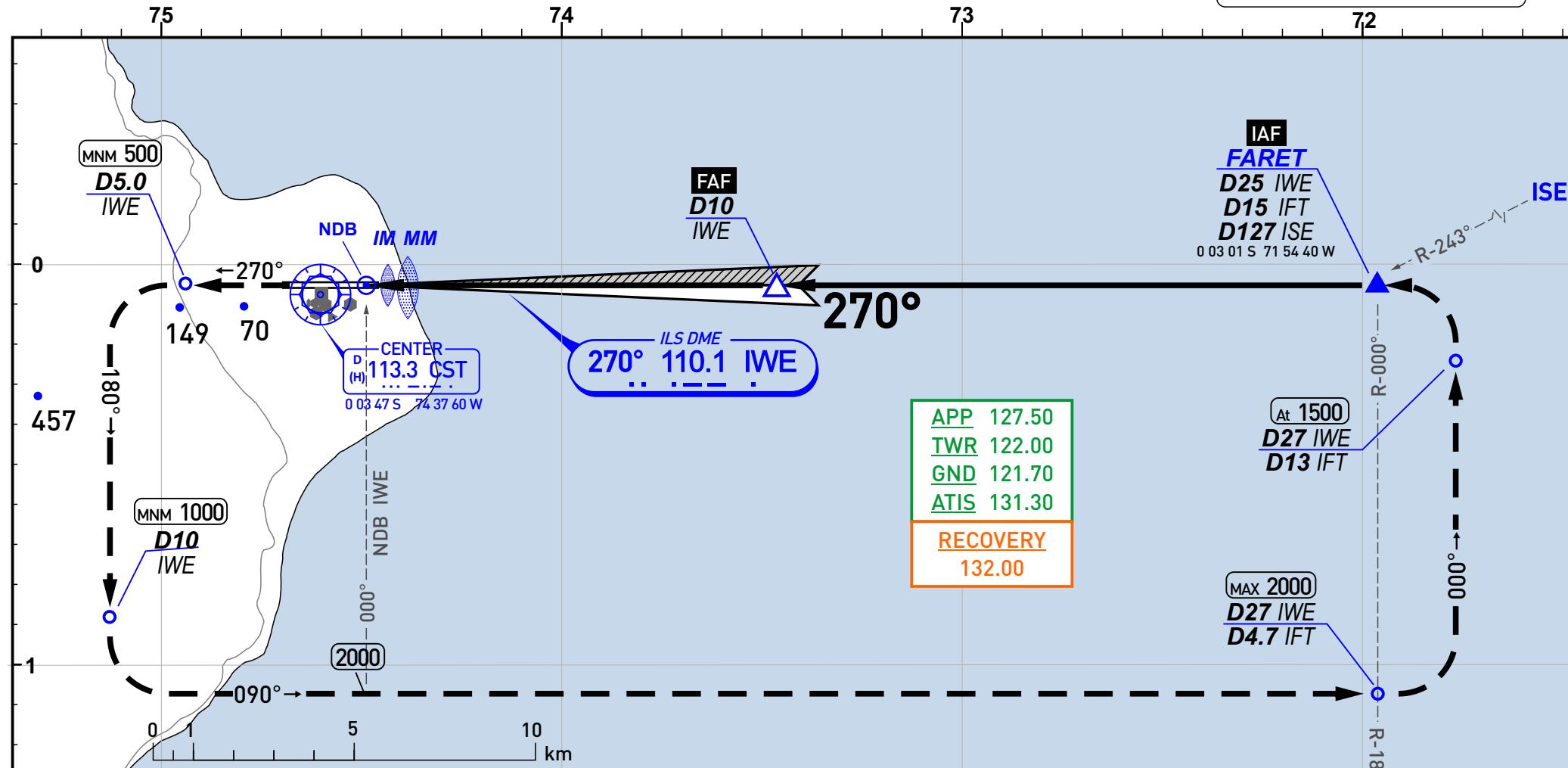
JEBBESEN

09-feb-2017

KKSC

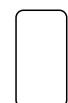
4-3

## ILS DME RWY 27



**JEBBESEN**

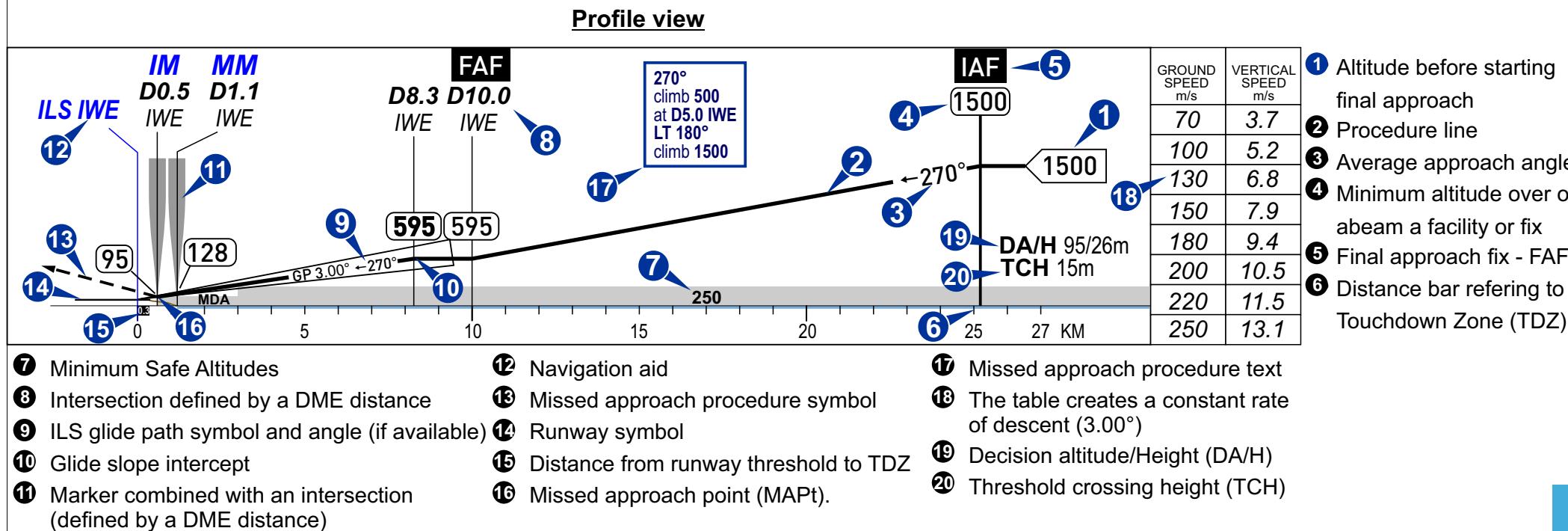
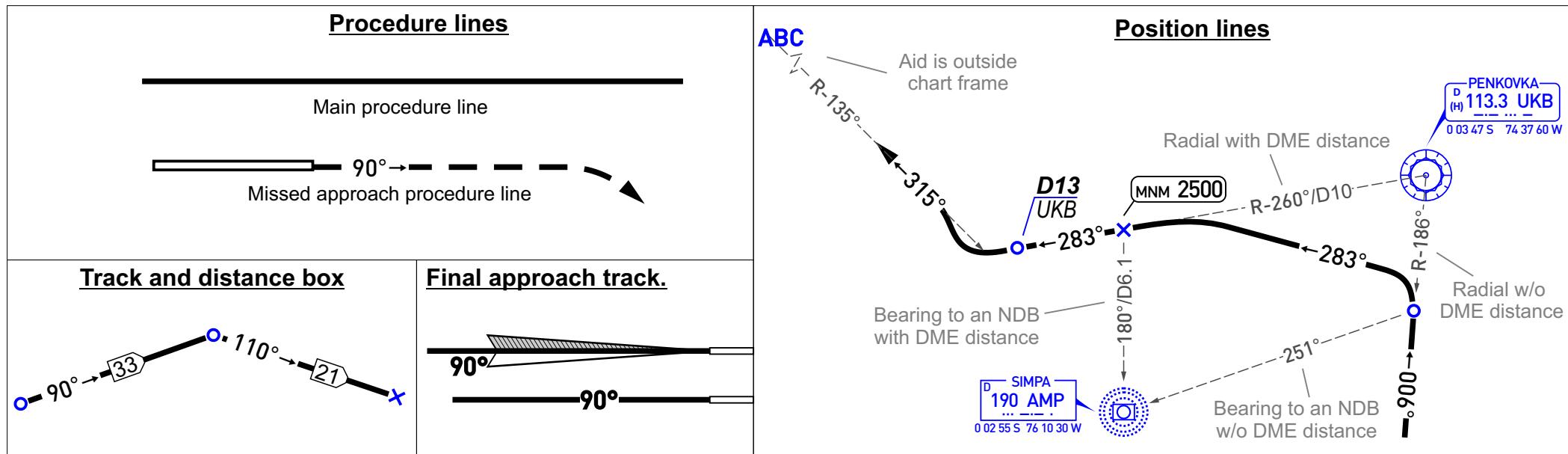
**09-feb-2017**



# AEROCHART LEGEND

<p><b>VOR co-located with DME</b></p> <p>Name Frequency Morse Code Coordinates DME Available</p>	<p><b>Structure</b>      <b>Terrain elevation</b>      <b>Highest terrain point</b></p> <table border="1"> <tr> <td>95</td> <td>95</td> <td>421</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>Lighted</td> <td>Un-Lighted</td> <td>871</td> </tr> </table>	95	95	421				Lighted	Un-Lighted	871
95	95	421								
Lighted	Un-Lighted	871								
<p><b>NDB co-located with DME</b></p> <p>Name Frequency Morse Code Coordinates DME Available</p>	<p><b>Restricted and danger areas</b>      <b>Water area</b>      <b>Aerodrome symbols</b></p> <p>KKSC      X Closed Aerodrome</p>									
<p><b>Plan view</b></p> <p>IM      MM      OM</p> <p>Inner    Middle    Outer</p> <p>Profile view</p> <p>IM      MM      OM      IRW NDB</p> <p>Inner    Middle    Outer    combined with a navigation aid</p>	<p><b>Helicopter landing site</b>      <b>Runways</b></p> <p>Paved      Unpaved</p>									
<p><b>ILS DME</b></p> <p>Frequency Name Landing course Morse Code Radial and DME dist.</p>	<p><b>Waypoint / Fix (with radio aid)</b></p> <p>At 2500 D6.0 ABC</p> <p>Name Restriction DME distance Radial and DME dist. Navaid ident Coordinates Name</p>									
<p><b>Altitudes</b></p> <table border="1"> <tr> <td>MNM 500</td> <td>At 1500</td> <td>MAX 2000</td> <td>2000</td> </tr> <tr> <td>Minimum or not below</td> <td>Mandatory or compulsory</td> <td>Maximum or not above</td> <td>Recommended</td> </tr> </table>	MNM 500	At 1500	MAX 2000	2000	Minimum or not below	Mandatory or compulsory	Maximum or not above	Recommended	<p><b>Waypoint / Fix (RNAV/GPS)</b></p> <p>KERUM 0 03 01 S 71 54 40 W fly-by</p> <p>SVETA 0 03 01 S 71 54 40 W fly-over</p> <p><b>Mileage break</b></p> <p>x</p> <p><b>Approach fix</b></p> <p>IAF      FAF</p> <p>Initial    Final</p>	
MNM 500	At 1500	MAX 2000	2000							
Minimum or not below	Mandatory or compulsory	Maximum or not above	Recommended							

# AEROCHART LEGEND



## DEFINITIONS

**Aerodrome elevation.** The elevation of the highest point of the landing area.

**Altitude.** The vertical distance of a level, a point or an object considered as a point, measured above sea level (ASL).

**Area navigation (RNAV).** A method of navigation which permits aircraft operation on any desired flight path within the coverage of the station-referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

**Decision altitude (DA) or decision height (DH).** A specified altitude or height at which a missed approach must be initiated if the required visual reference to continue the approach has not been established. Decision altitude (DA) is referenced to ASL and decision height (DH) is referenced to the AGL (Above ground level)

**DME distance.** The line of sight distance (slant range) from the source of a DME signal to the receiving antenna.

**Heading.** The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North.

**Initial approach fix (IAF).** A fix that marks the beginning of the initial segment and the end of the arrival segment, if applicable. In RNAV applications this fix is normally defined by a fly-by waypoint.

**Minimum descent altitude (MDA).** A specified altitude in approach below which descent must not be made without the required visual reference. Minimum descent altitude (MDA) is referenced to ASL

**Missed approach point (MAPt).** That point in an approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

**Missed approach procedure.** The procedure to be followed if the approach cannot be continued.

**Threshold (THR).** The beginning of that portion of the runway usable for landing.

**Track.** The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North.

**Waypoint.** A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

**Fly-by waypoint.** A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

**Flyover waypoint.** A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

## ABBREVIATIONS AND ACRONYMS

<b>AGL</b>	Above ground level
<b>ASL</b>	Above sea level
<b>ATC</b>	Air traffic control
<b>CDI</b>	Course deviation indicator
<b>DA/H</b>	Decision altitude/height
<b>DME</b>	Distance measuring equipment
<b>EFIS</b>	Electronic flight instrument system
<b>FAF</b>	Final approach fix
<b>FMC</b>	Flight management computer
<b>GNSS/</b>	Global navigation satellite system
<b>GPS</b>	
<b>GP</b>	Glide path
<b>GPWS</b>	Ground proximity warning system
<b>HSI</b>	Horizontal situation indicator
<b>IAS</b>	Indicated airspeed
<b>ILS</b>	Instrument landing system
<b>kt</b>	Knot(s)
<b>km</b>	Kilometre(s)
<b>LNAV</b>	Lateral navigation
<b>m</b>	Metre(s)
<b>MAPt</b>	Missed approach point
<b>MDA/H</b>	Minimum descent altitude/height
<b>NDB</b>	Non-directional beacon
<b>NM</b>	Nautical mile(s)
<b>OM</b>	Outer marker
<b>RNAV</b>	Area navigation
<b>THR</b>	Threshold
<b>VNAV</b>	Vertical navigation
<b>VOR</b>	Very high frequency omnidirectional radio range
<b>VPA</b>	Vertical path angle

## SPEED CONVERSION

SPEED m/s	km/min	km/h
5	0,3	18
6	0,36	21,6
7	0,42	25,2
8	0,48	28,8
9	0,54	32,4
10	0,6	36
11	0,66	39,6
12	0,72	43,2
13	0,78	46,8
14	0,84	50,4
15	0,9	54
16	0,96	57,6
17	1,02	61,2
18	1,08	64,8
19	1,14	68,4
20	1,2	72
21	1,26	75,6
22	1,32	79,2
23	1,38	82,8
24	1,44	86,4
25	1,5	90
26	1,56	93,6
27	1,62	97,2
28	1,68	100,8
29	1,74	104,4
30	1,8	108
31	1,86	111,6
32	1,92	115,2
33	1,98	118,8
34	2,04	122,4
35	2,1	126
36	2,16	129,6
37	2,22	133,2
38	2,28	136,8
39	2,34	140,4
40	2,4	144
41	2,46	147,6
42	2,52	151,2
43	2,58	154,8
44	2,64	158,4
45	2,7	162
46	2,76	165,6
47	2,82	169,2
48	2,88	172,8
49	2,94	176,4
50	3	180
55	3,3	198
60	3,6	216
65	3,9	234

# NORMAL OPERATING CHECKLISTS

BEFORE ENGINE START	DESCENT
PARKING BRAKE.....SET THROTTLE.....IDLE LANDING GEAR.....DOWN-GREEN FLAPS.....RETRACTED LIGHTS.....ON FLIGHT PLAN.....FILED STAGING.....CHECK FUEL QUANTITY.....CHECK BATTERY CHARGE.....CHECK	BRIEFING.....CONFIRMED NAV RADIO.....SET APU.....ON AVIONICS.....CHECK SAS.....ON, STAB ENGINE GIMBAL.....AS REQUIRED ENGINE MODE.....AS REQUIRED THRUST LIMIT.....AS REQUIRED NAV RADIO.....SET LIGHTS.....ON PARKING BRAKE.....SET BRAKES FORCE.....SET AUTO SPEED BRAKE.....OFF SPOILER.....RETRACTED FLAPS.....AS REQUIRED TRIM.....AS REQUIRED FLT CONTROLS.....TEST CABIN.....READY ATC.....ADVISE
BEFORE TAKEOFF	APPROACH / LANDING
BRIEFING.....CONFIRMED APU.....ON AVIONICS.....CHECK SAS.....ON, STAB ENGINE GIMBAL.....AS REQUIRED ENGINE MODE.....AS REQUIRED THRUST LIMIT.....AS REQUIRED NAV RADIO.....SET LIGHTS.....ON PARKING BRAKE.....SET BRAKES FORCE.....SET AUTO SPEED BRAKE.....OFF SPOILER.....RETRACTED FLAPS.....AS REQUIRED TRIM.....AS REQUIRED FLT CONTROLS.....TEST CABIN.....READY ATC.....ADVISE	ENGINE GIMBAL.....AS REQUIRED ENGINE MODE.....AS REQUIRED THRUST LIMIT.....AS REQUIRED NAV RADIO.....SET RADAR ALT.....MDA/DH SET LANDING GEAR.....DOWN-GREEN FLAPS.....AS REQUIRED TRIM.....AS REQUIRED CABIN.....READY
AFTER TAKEOFF	PARKING
FLAPS.....RETRACTED LANDING GEAR.....UP LIGHTS.....OFF APU.....OFF	PARKING BRAKE.....SET LIGHTS.....OFF TRIM.....RESET-CHECK THROTTLE.....IDLE ENGINE.....SHUTDOWN STAGING.....CHECK VESSEL RECOVERY CALL.....AS REQUIRED

