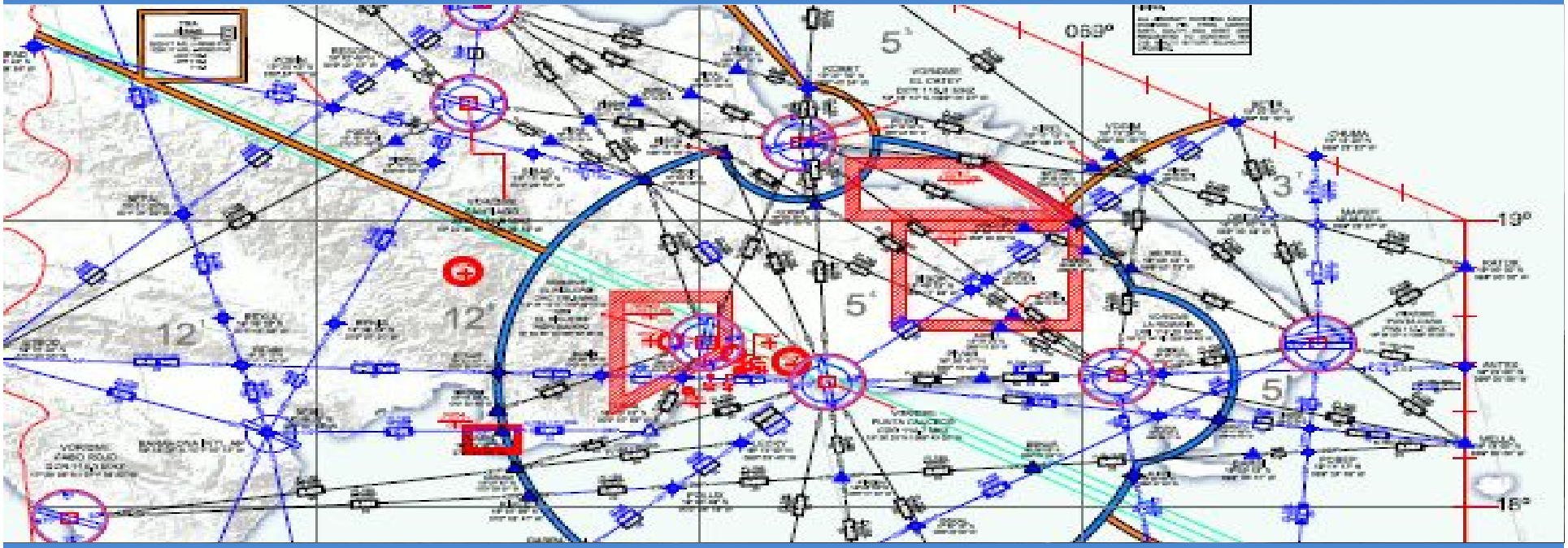
NAM/CAR Meeting (ANI/WG/PBN/TF)



Dirección de Navegación Aérea

- **NAM/CAR Air Navigation Implementation Working Group (ANI/WG)**

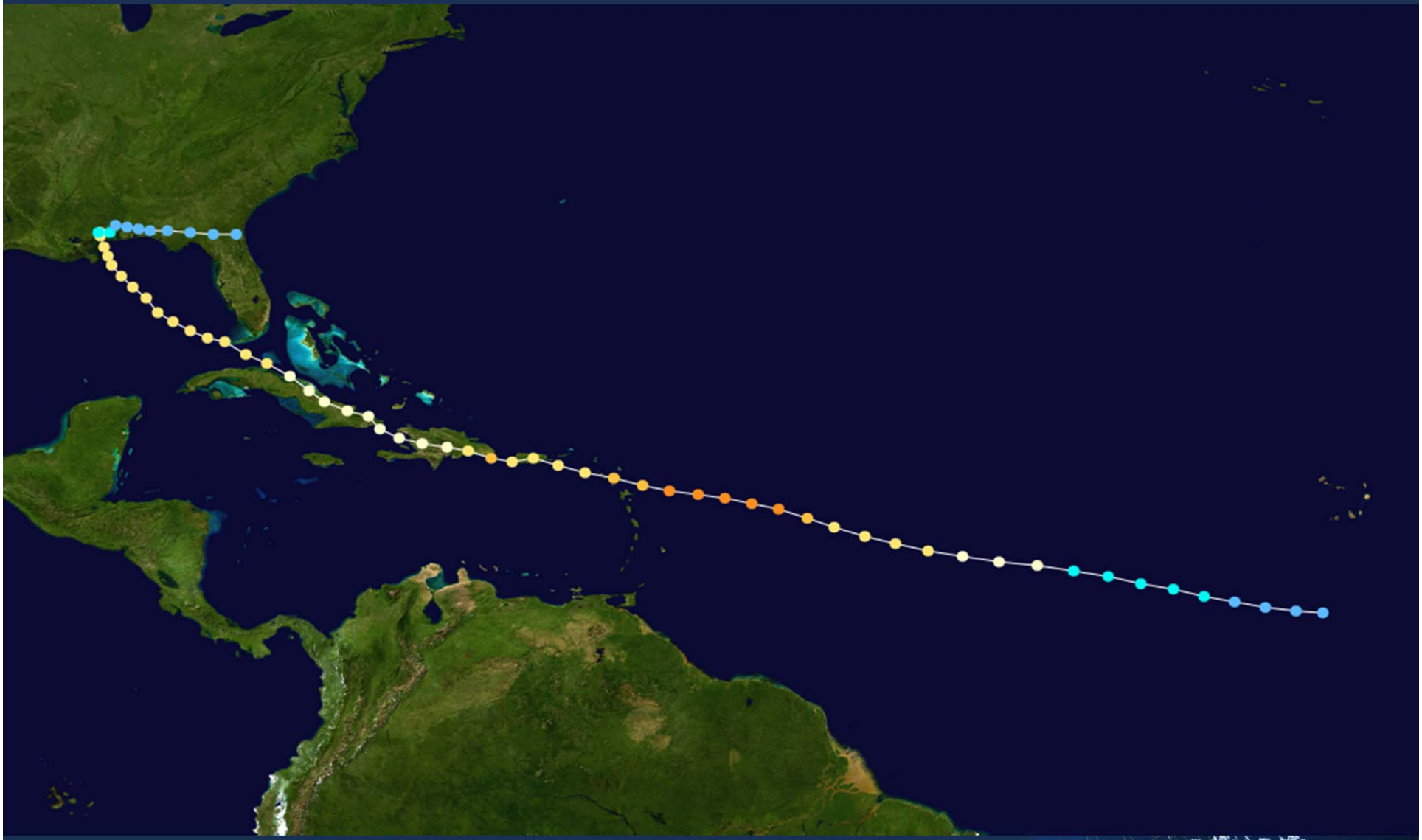
Performance-Based Navigation (PBN) Implementation Task Force Meeting (ANI/WG/PBN/TF)

Mexico City, Mexico, 22 – 25 April 2019

INTRODUCTION

- The importance of PBN procedures is that they are composed of autonomous navigation systems based on sensors installed on board of the aircrafts assisted by satellite systems, which allow the aircrafts to navigate without the need of NAVAIDS based on ground systems.

- Dominican Republic is one of the Caribbean States located in the track of the hurricanes, back to 1998, September 22 1998, Dominican Republic was impacted by the CAT 3 hurricane George, causing serious damages to the ground based NAVAIDS equipment's, affecting all the conventional ATS route system and approach procedures, leaving the Dominican airports uncommunicated for both, from taking tourists out of the country and for receiving help from the international community.



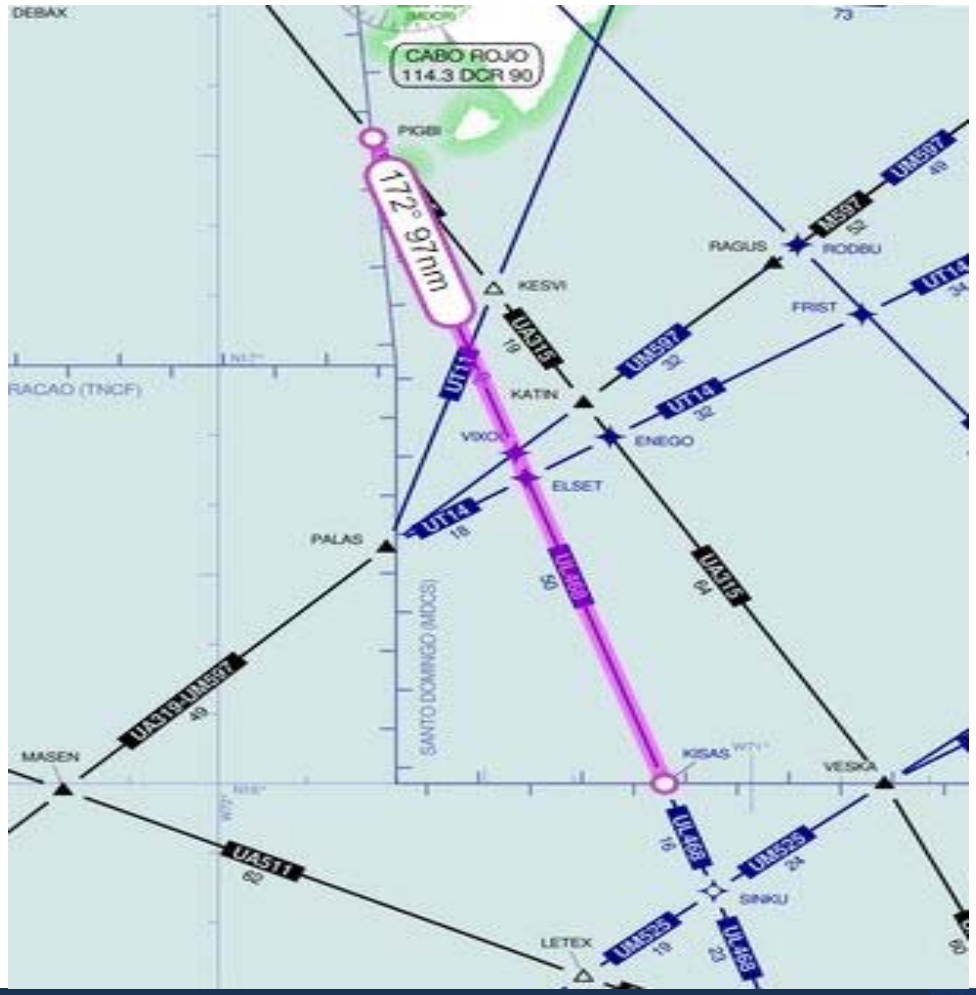
Dirección de Navegación Aérea

- Based on this experience, Dominican Republic started, ahead of time, the establishment of RNAV procedures that would allow the country to face this latent danger that threatens all the Caribbean States.

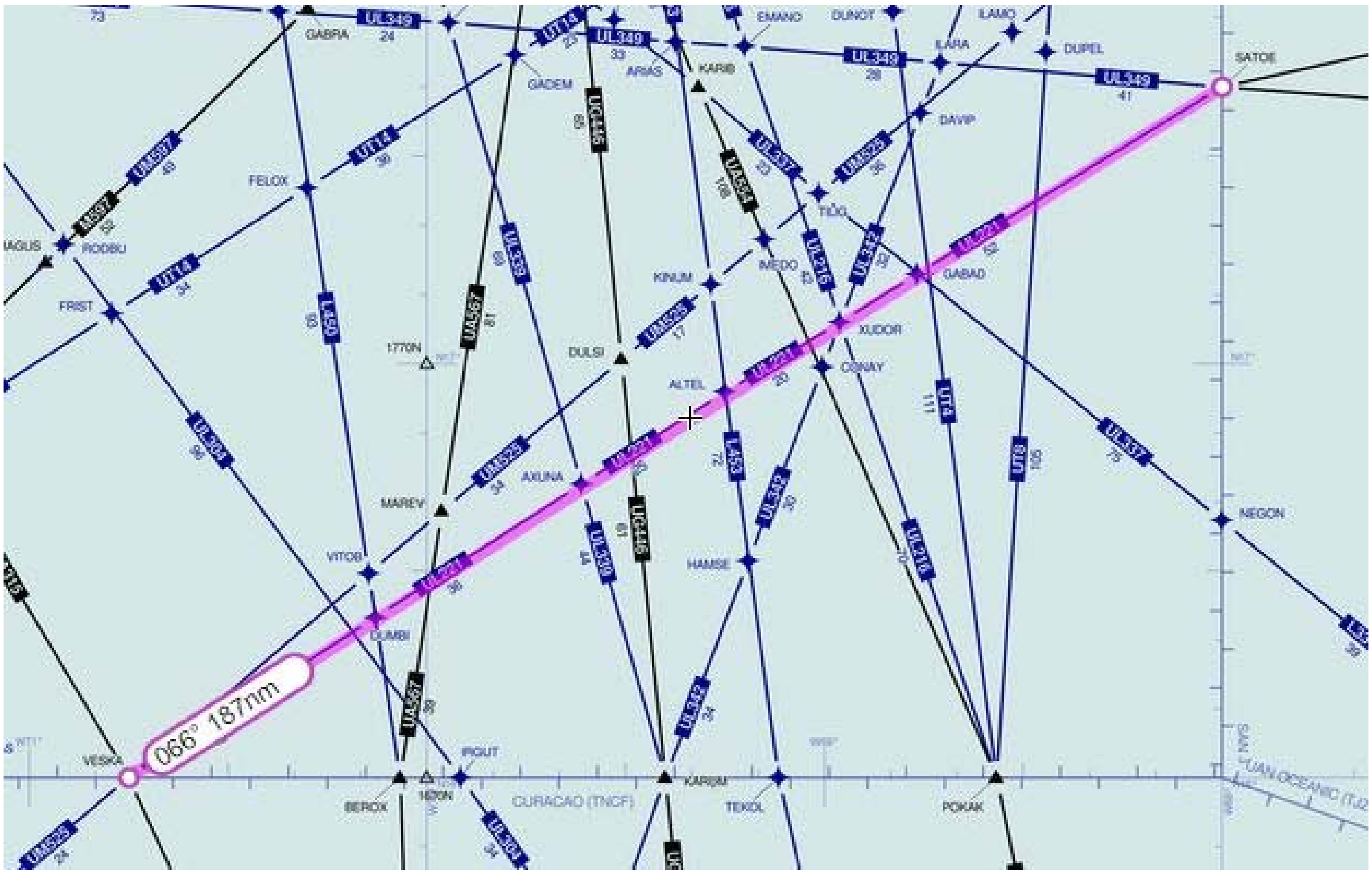
DEVELOPMENT

- From the conclusions of the ICAO/IATA/CANSO Performance-Based Navigation (PBN) Harmonization, Modernization and Implementation Meeting for the Caribbean (CAR) Region held in Miami, Florida, United States, 28 March – 1 April 2016, IDAC implemented 7 new regional PBN Routes:

UL468


DEBAX
CABO ROJO
114.3 DCR 90
PIGBI
172° 97nm
KESVI
RAGUS
RODBU
FRIST
KATIN
ENEGO
ELSET
PALAS
RACAO (TNCF)
SANTO DOMINGO (MDCS)
MASEN
KISAS
VESKA
SINKU
LETEX
UA319
UM597
UT14
UA315
UA511
UM535
UL468

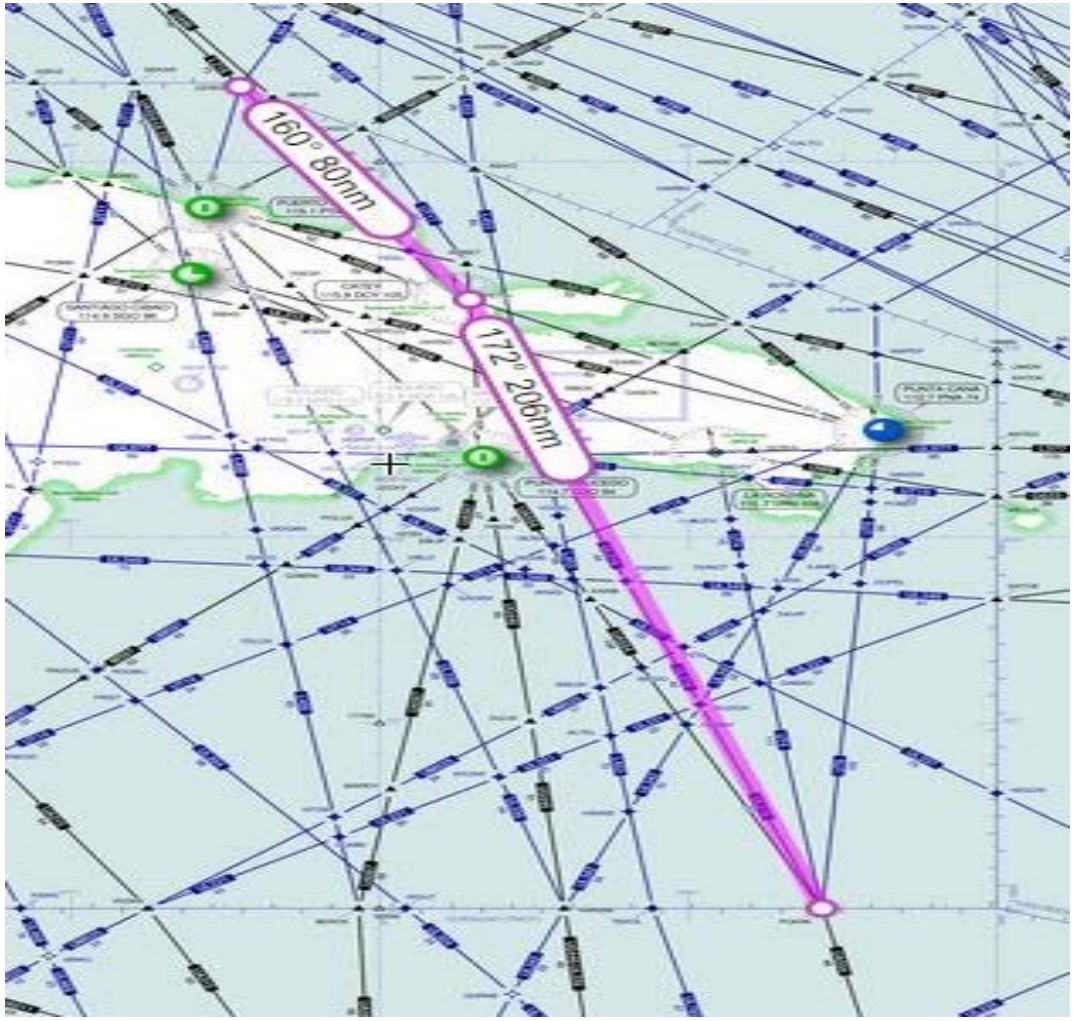
UL221


066° 187nm
VESKA
SATOE
GABAD
XUDOR
ALTEL
AXUNA
DUMBI
UL221
GABRIA
EMANO
DUNOT
ILAMO
ILARA
DUPEL
KARIB
ARIAS
GADEM
DAVIP
FELOX
RODBU
FRIST
KINUM
DULSI
CONAY
MAREV
VITOB
HAMSE
NEGON
IRGUT
BEROX
TEKOL
POKAK
CURACAO (TNCF)
1770N
1670N
UL349
UT14
UL337
UL453
UL342
UT4
UT8

UL342


PUNTA CAUCEDO
114.7 CDO 94
LA ROMANA
116.2 ERN 109
UL342
031° 164nm
GABIM
ELOMA
GOSUL
NADAX
NAKEM
VOGAR
VOGEL
PIBOIN
GOKAS
ALEVI
YIBLO
MEDIB
EMANO
DUNOT
ILAMO
DUPEL
GADEM
ARIAS
KARIB
DAVIP
TIDO
KINUM
MEDO
GABAD
XUDOR
DULSI
ALTEL
CONAY
AXURA
HAMSE
KARIM
TEKOL
POKAK
CURACAO (TNCF)

UL216



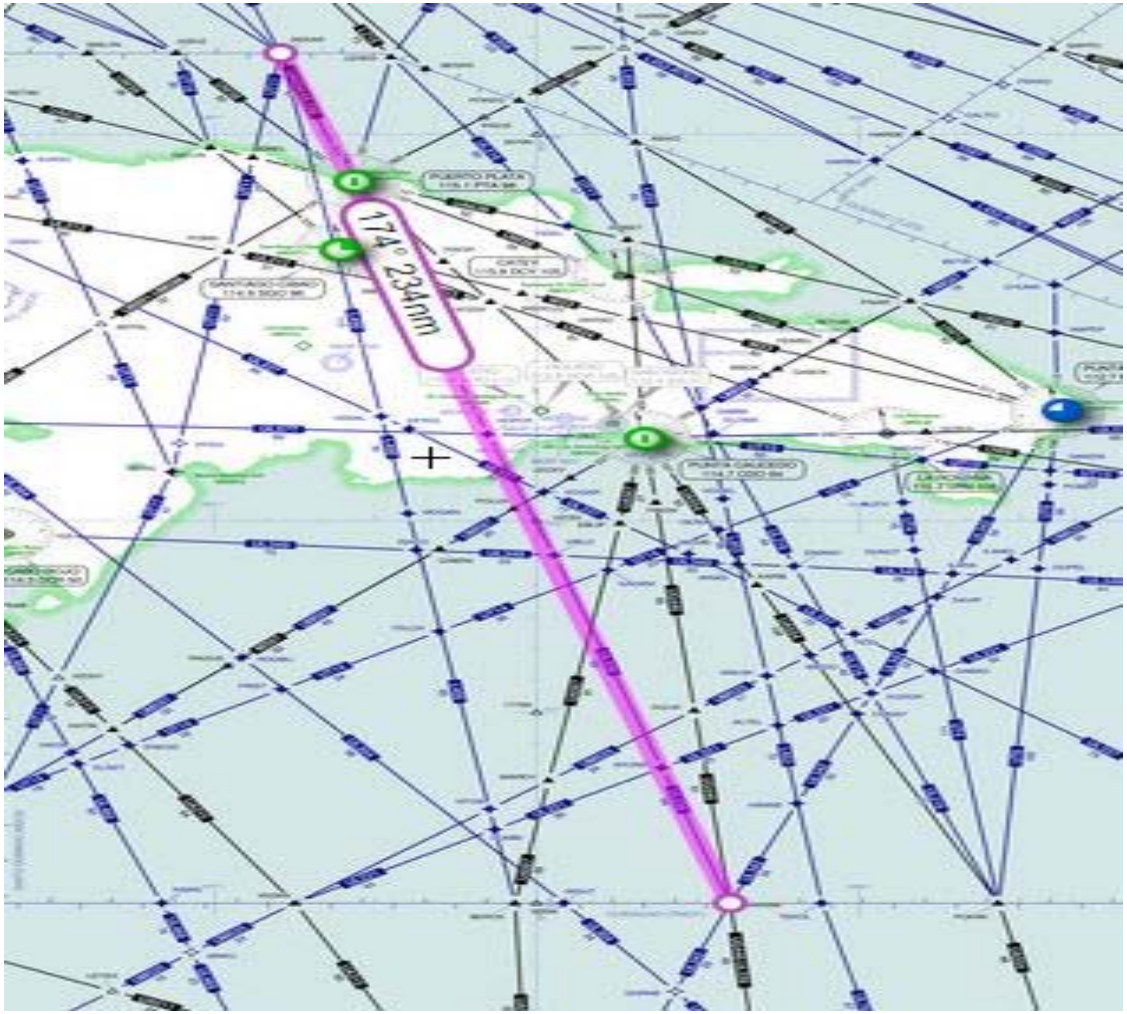
UL349


103° 209nm
UL349
PUNTA CAUCEDO
114.7 CDO 94
LA ROMANA
116.2 LRN 109
CABO ROJO
114.3 DCR 90
UL577
UL576
UT15
UT14
UL452
UA567
UW9
G633
UL454
KEBAL
EPTES
HOFER
PITEX
BEXIL
LECKY
VOGAR
POLUX
MOGAN
PIRON
EBLIP
GOXAL
VODEL
ALEVI
NAKEM
POBEP
MELLA
ANTEX
NADAX
GABIM
ELOMA
IDACO
GABRA
VBLO
MEDIB
EMANO
DUNOT
ILAMO
LARA
DUPEL
SATOE
GADEM
ARIAS
KARIB
DAVIP
PIGBI
KESVI
RAGUS
RODBU
FELOX
FRIST
KINUM
TIDO
GABAD
XUDOR
KENOK

UL577

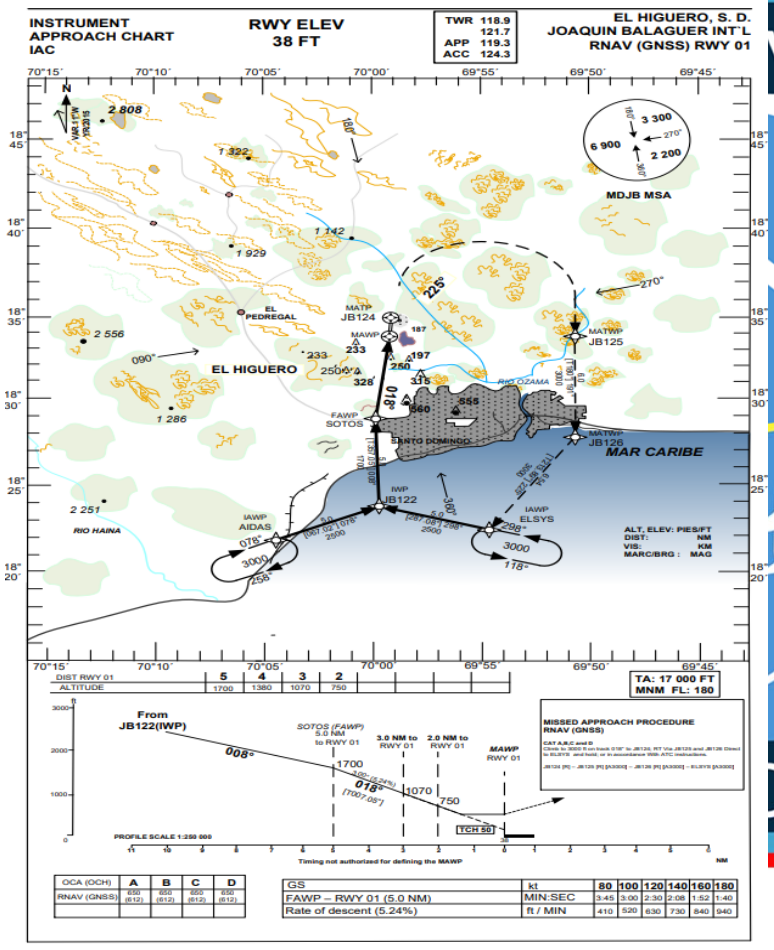

100° 126nm
099° 95nm
UL577
114.9 SOO 98
HIGUERO
116.6 DHG 113
HIGUERO
115.8 HGR 105
SAN ISIDRO
112.4 SIS 71
PUNTA CANA
112.7 PNA 74
PUNTA CAUCEDO
114.7 CDO 94
LA ROMANA
116.2 LRN 109
BEPAL
KODIK
KERSO
BETUM
PIXAR
DEMBU
GABOK
MAPEP
LIMON
KATOK
ANTEX
KEBAL
EPTES
HOFER
GABIM
ELOMA
PITEX
BEXIL
NADAX
NAKEM
POBEP
MELLA
VODAR
POLUX
MOGAN
PIRON
EBLIP
YODEL
KENOK
IDACO
VIBLO
ALEVI
EMANO
DUNOT
MUNOZ

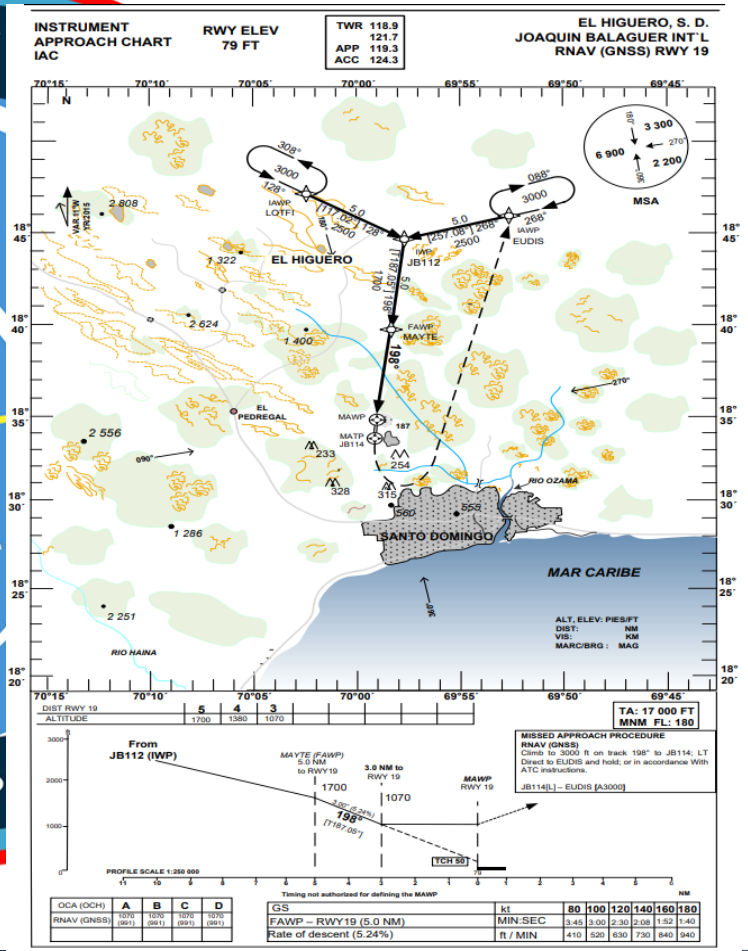
UL339



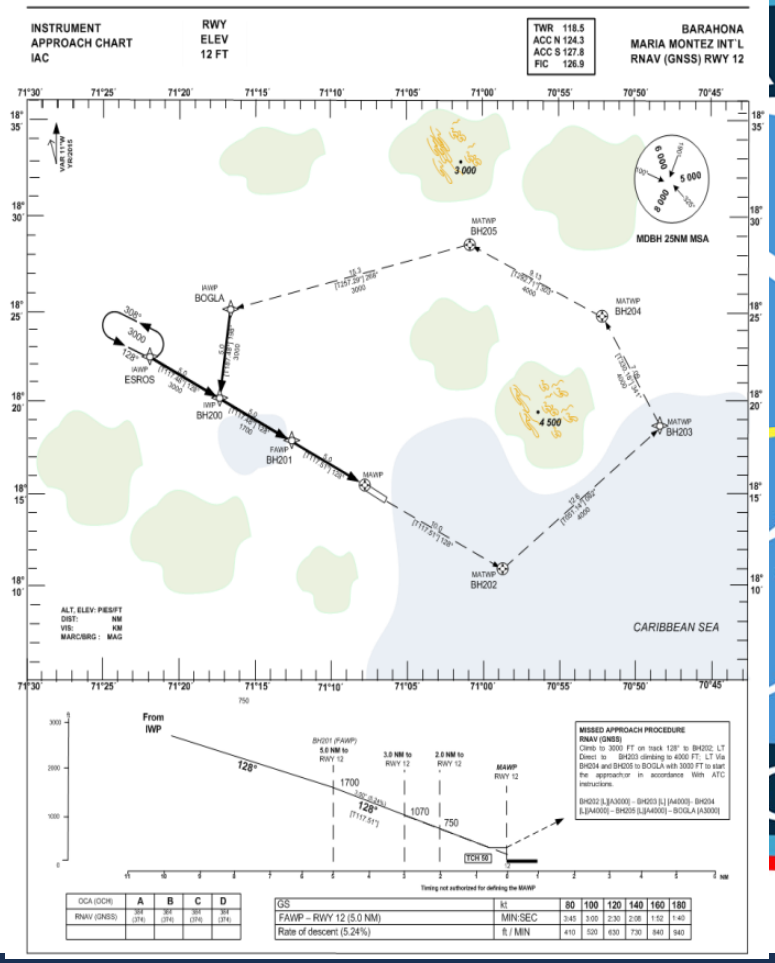
- IDAC implemented new PBN procedures for runway 01-19 at MDJB airport and runway 12-30 at MDBH airport.

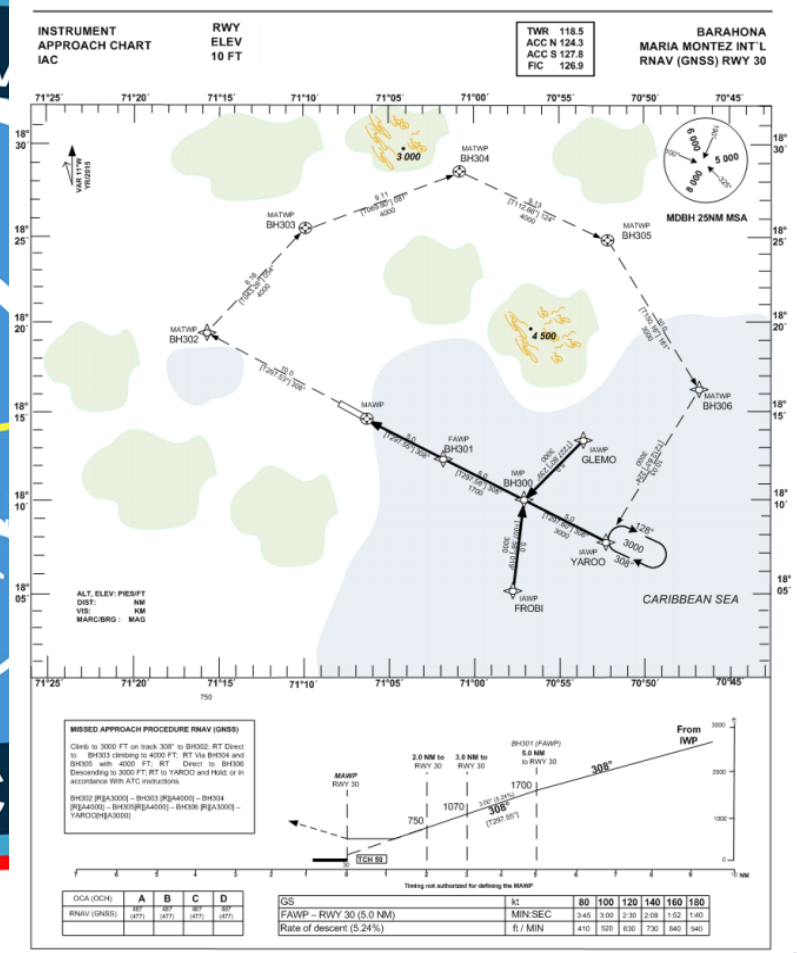
PBN APP PROCEDURES 01-19 MDJB



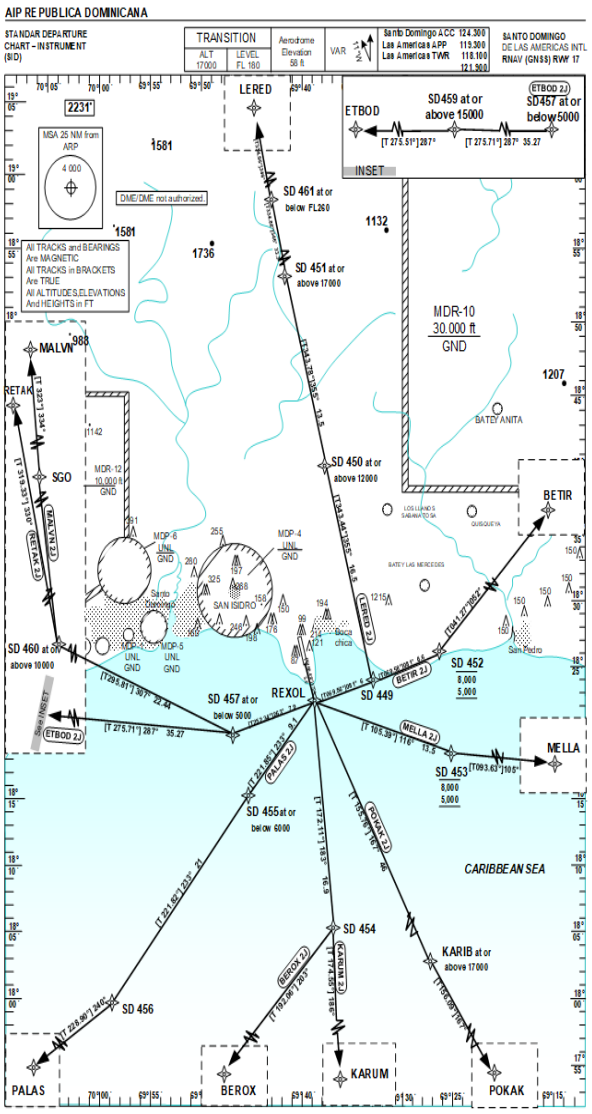


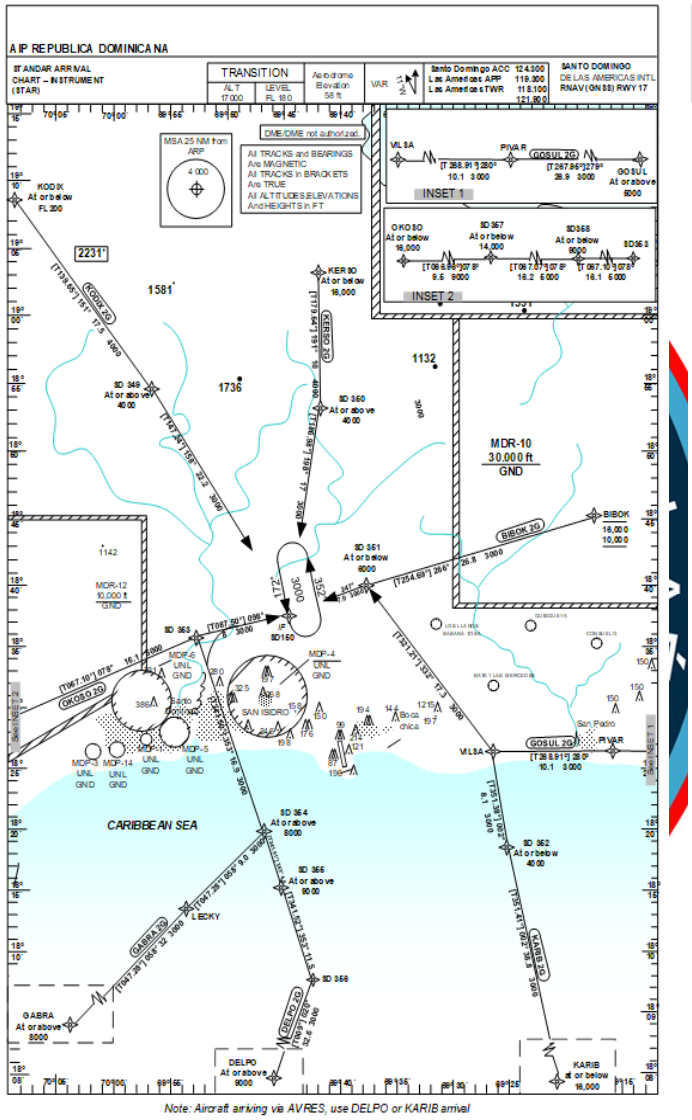
PBN APP PROCEDURES 12-30 MDBH



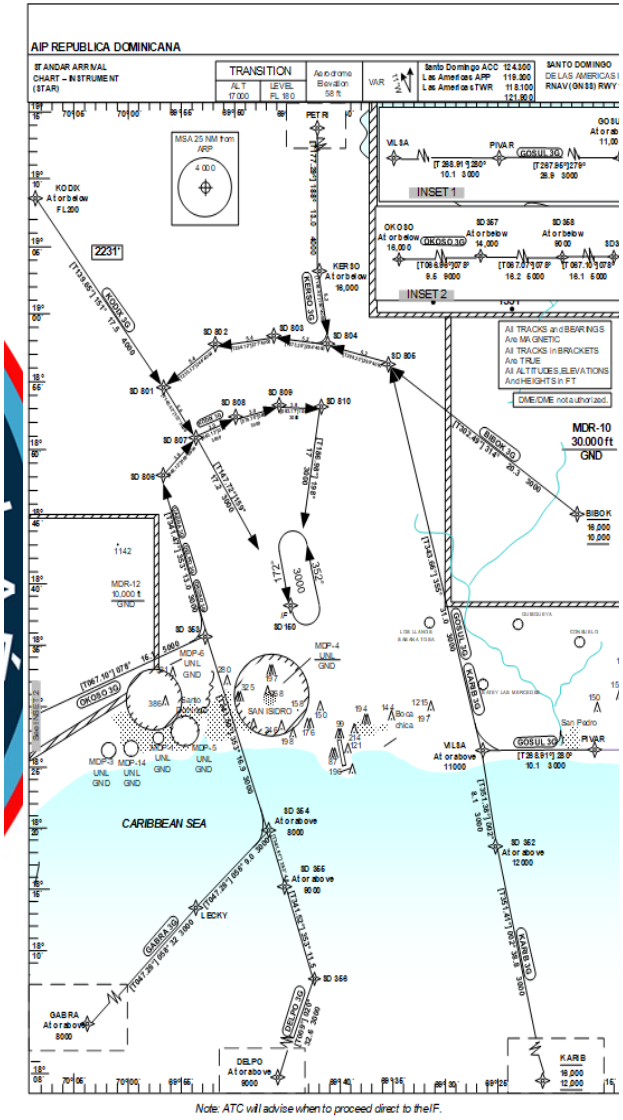


- IDAC updated the SID's and STARs procedures for MDSD, MDPP and MDPC airports.

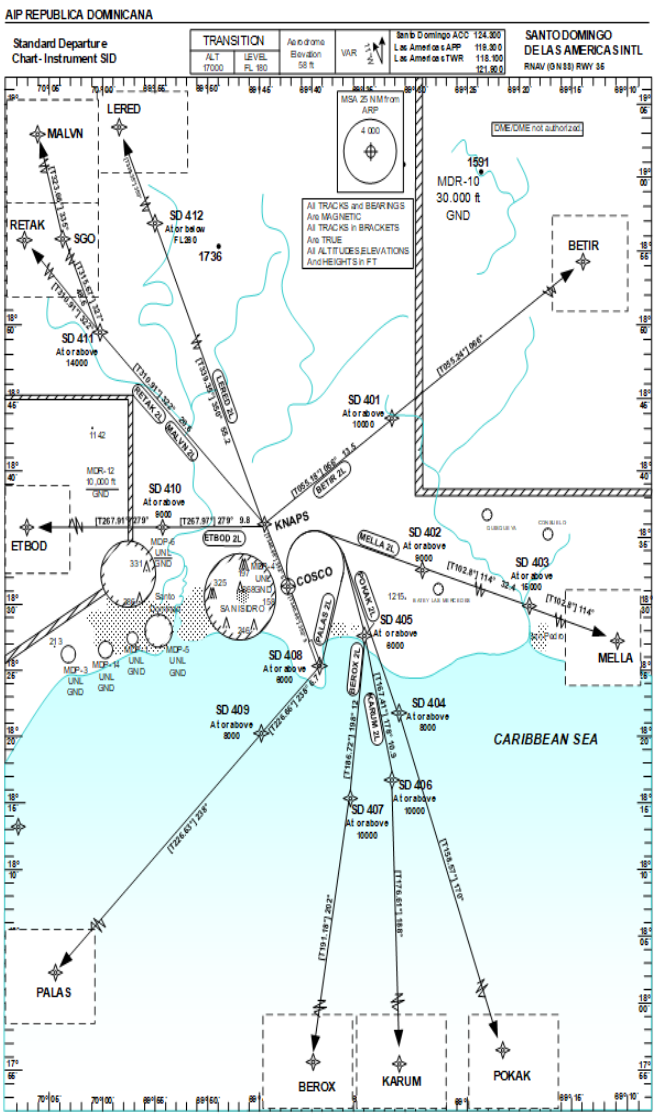


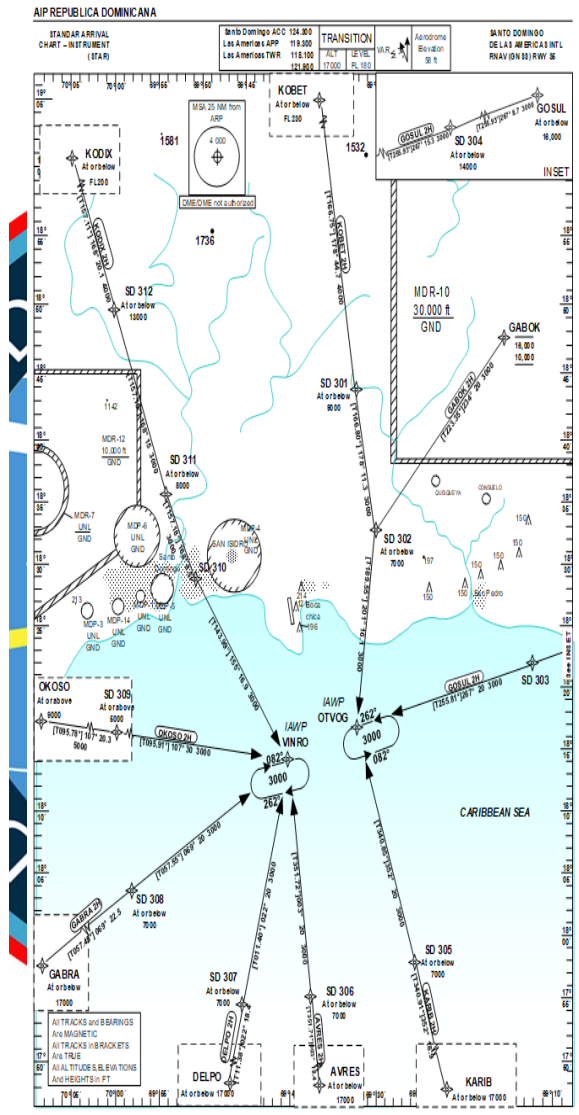


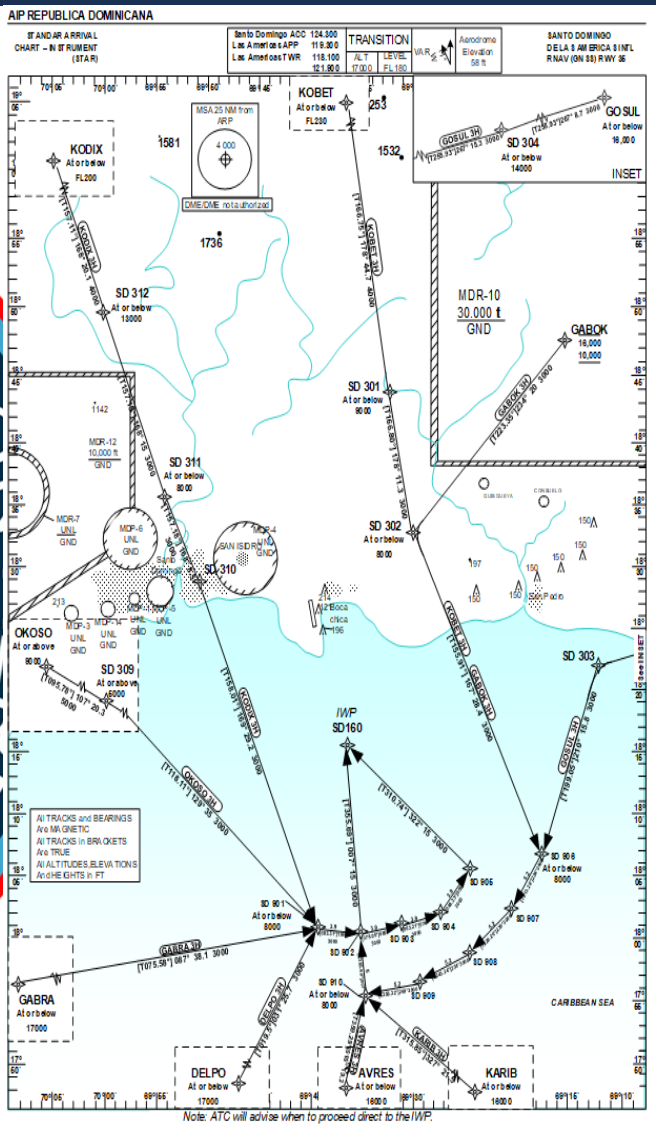
Note: Aircraft arriving via AVRES, use DELPO or KARIB arrival

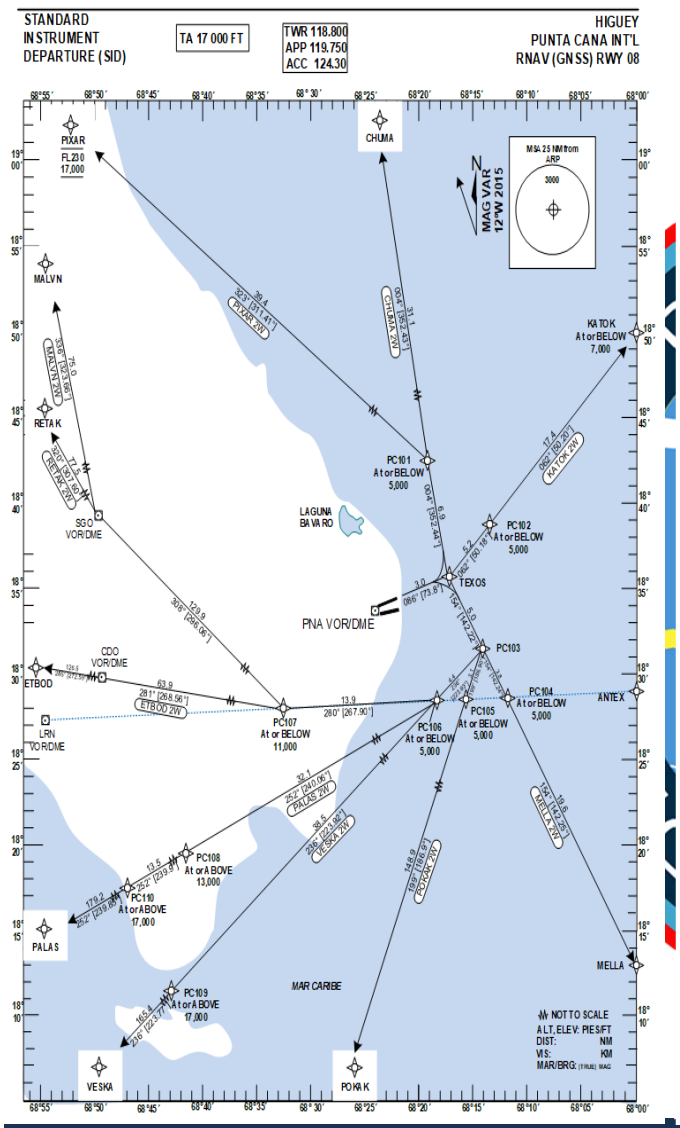


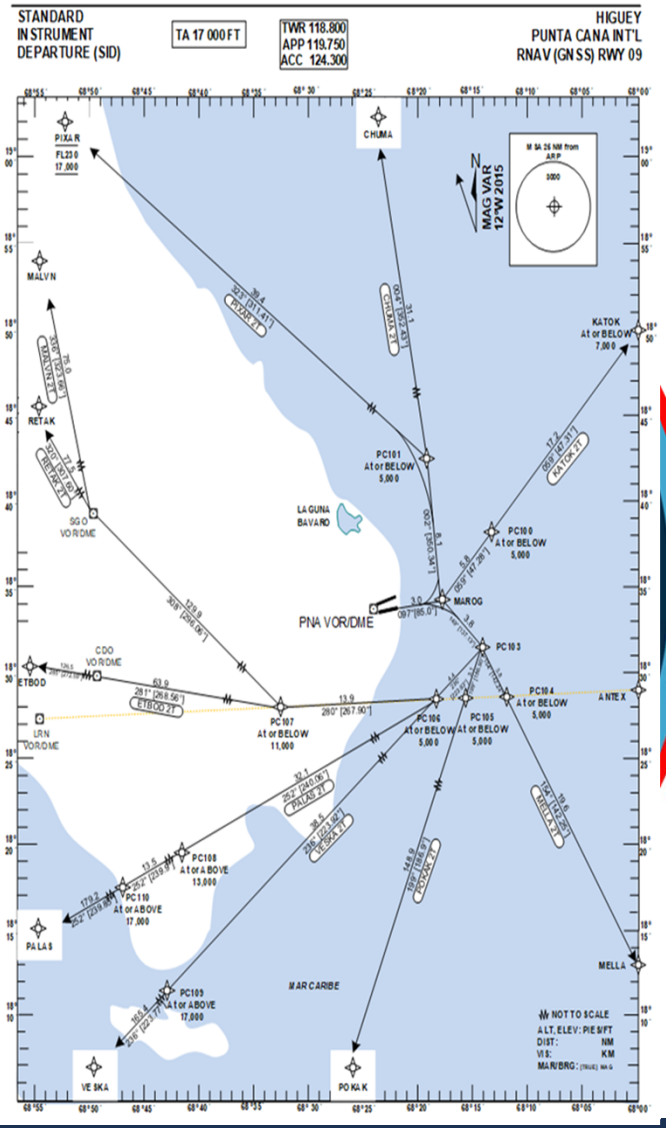
Note: ATC will advise when to proceed direct to the IF.

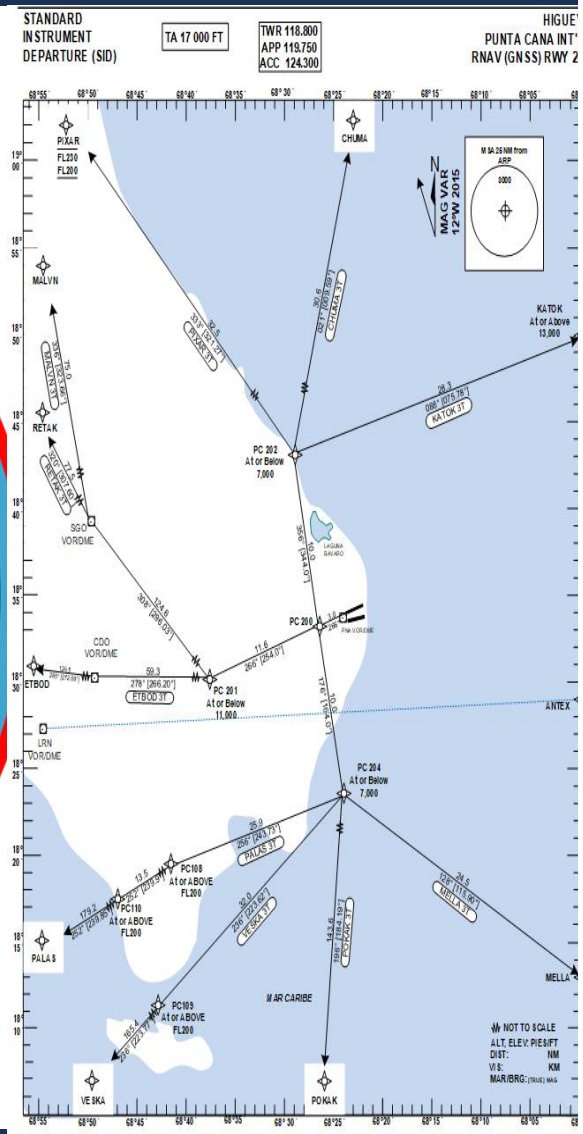

AIP REPUBLICA DOMINICANA
Standard Departure
Chart- Instrument SID
SANTO DOMINGO
DE LAS AMERICAS INTL
RNAV (GNSS) RWY 35
MALVN
LERED
RETAK
SGO
SD 412
SD 411
SD 401
SD 410
SD 402
SD 403
SD 405
SD 408
SD 409
SD 404
SD 406
SD 407
BETIR
KNAPS
COSCO
ETBOD
MELLA
PALAS
BEROX
KARUM
POKAK
CARIBBEAN SEA
MDR-10
30.000 ft
GND
DME/DME not authorized

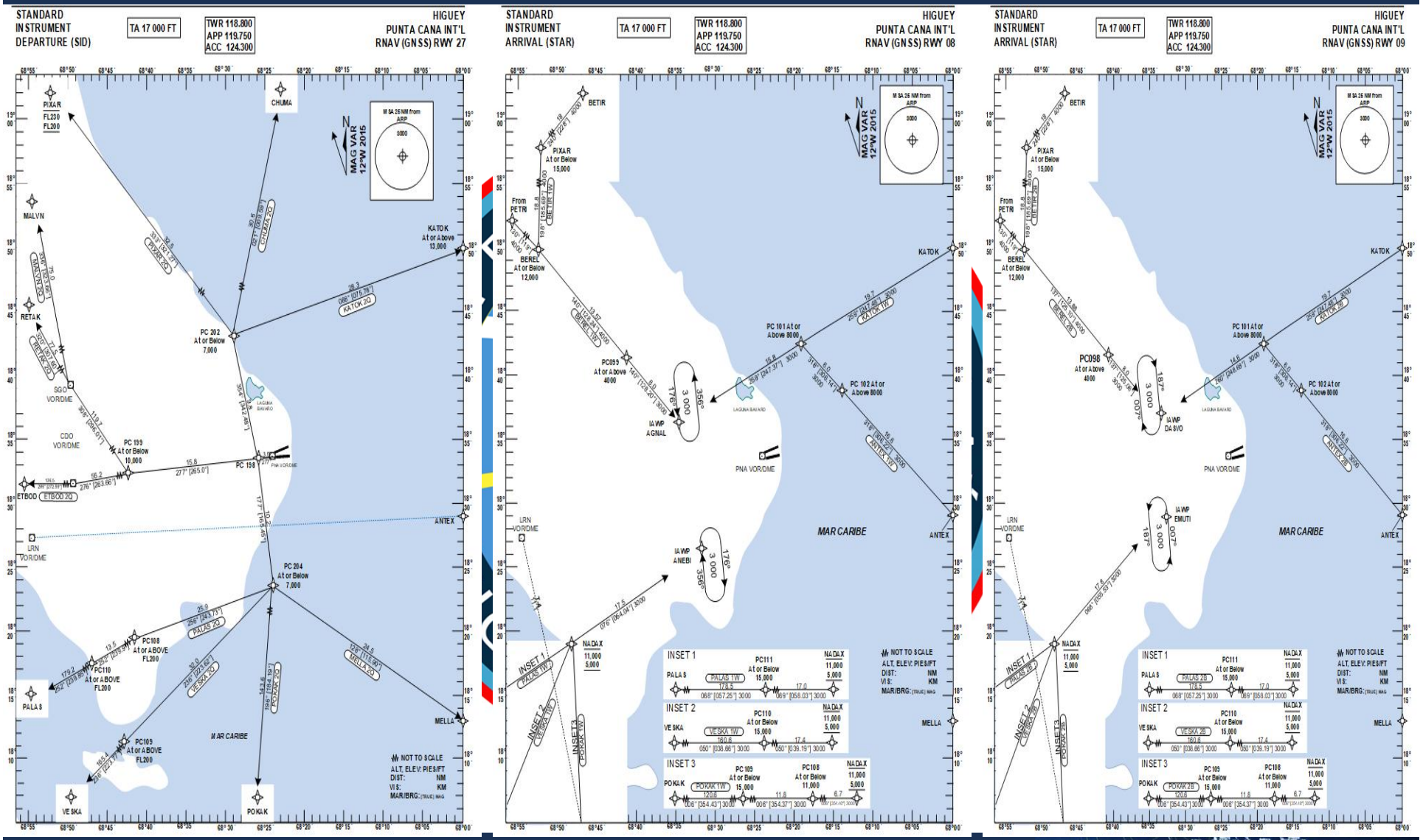

AIP REPUBLICA DOMINICANA
STANDAR ARRIVAL
CHART – INSTRUMENT
(STAR)
SANTO DOMINGO
DE LAS AMERICAS INTL
RNAV (GNSS) RWY 35
KOBET
KODIX
GOSUL
SD 304
SD 312
SD 311
SD 301
SD 302
SD 310
GABOK
OKOSO
SD 309
IAWP
OTVOG
IAWP
VNRO
SD 303
GABRA
SD 308
SD 307
SD 306
SD 305
DELPO
AVRES
KARIB
CARIBBEAN SEA
MDR-10
30.000 ft
GND
INSET


AIP REPUBLICA DOMINICANA
STANDAR ARRIVAL
CHART – INSTRUMENT
(STAR)
SANTO DOMINGO
DE LA S AMERICA S INTL
RNAV (GNSS) RWY 35
KOBET
KODIX
GOSUL
SD 304
SD 312
SD 311
SD 301
SD 302
SD 310
GABOK
OKOSO
SD 309
IWP
SD160
SD 303
GABRA
SD 908
SD 907
SD 906
SD 905
SD 904
SD 903
SD 902
SD 901
SD 910
SD 909
DELPO
AVRES
KARIB
CARIBBEAN SEA
MDR-10
30.000 ft
GND
INSET
Note: ATC will advise when to proceed direct to the IWP.

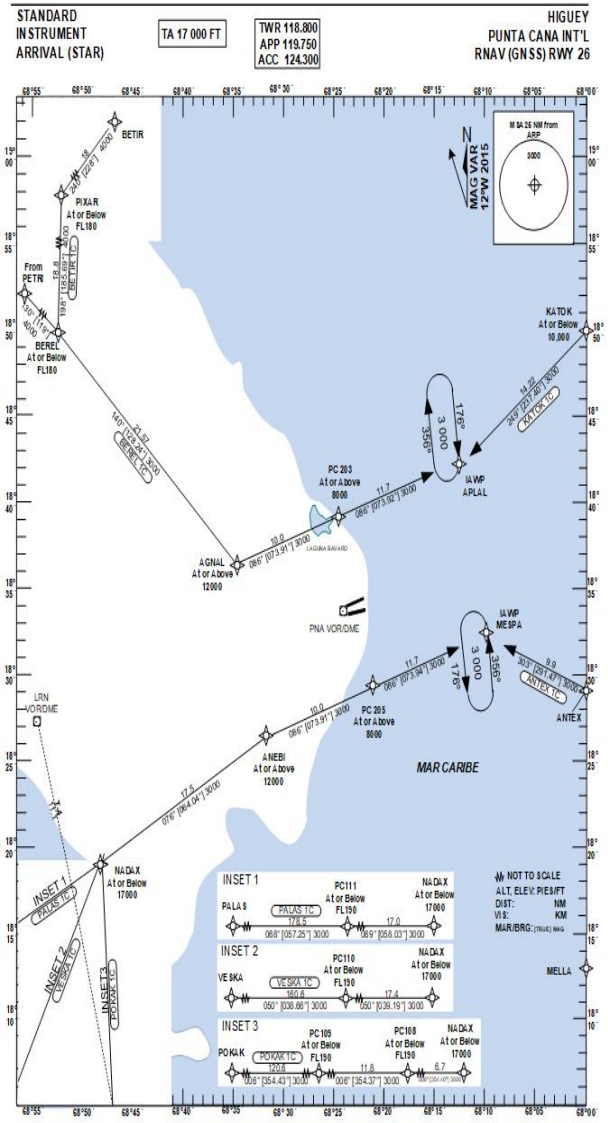

STANDARD
INSTRUMENT
DEPARTURE (SID)
TA 17 000 FT
TWR 118.800
APP 119.750
ACC 124.30
HIGUEY
PUNTA CANA INT'L
RNAV (GNSS) RWY 08
PIXAR
FL230
17,000
CHUMA
MAG VAR
12°W 2015
MALVN
KATOK
At or BELOW
7,000
RETAK
SGO
VOR/DME
LAGUNA
BAVARO
PC101
At or BELOW
5,000
PC102
At or BELOW
5,000
TEXOS
PNA VOR/DME
PC103
CDO
VOR/DME
ETBOD
LRN
VOR/DME
PC107
At or BELOW
11,000
PC106
At or BELOW
5,000
PC105
At or BELOW
5,000
PC104
At or BELOW
5,000
ANTEX
PC108
At or ABOVE
13,000
PC110
At or ABOVE
17,000
PALAS
PC109
At or ABOVE
17,000
MELLA
MAR CARIBE
VESKA
POKAK
NOT TO SCALE
ALT, ELEV: FEET/FT
DIST: NM
VIS: KM
MAR/BRG:

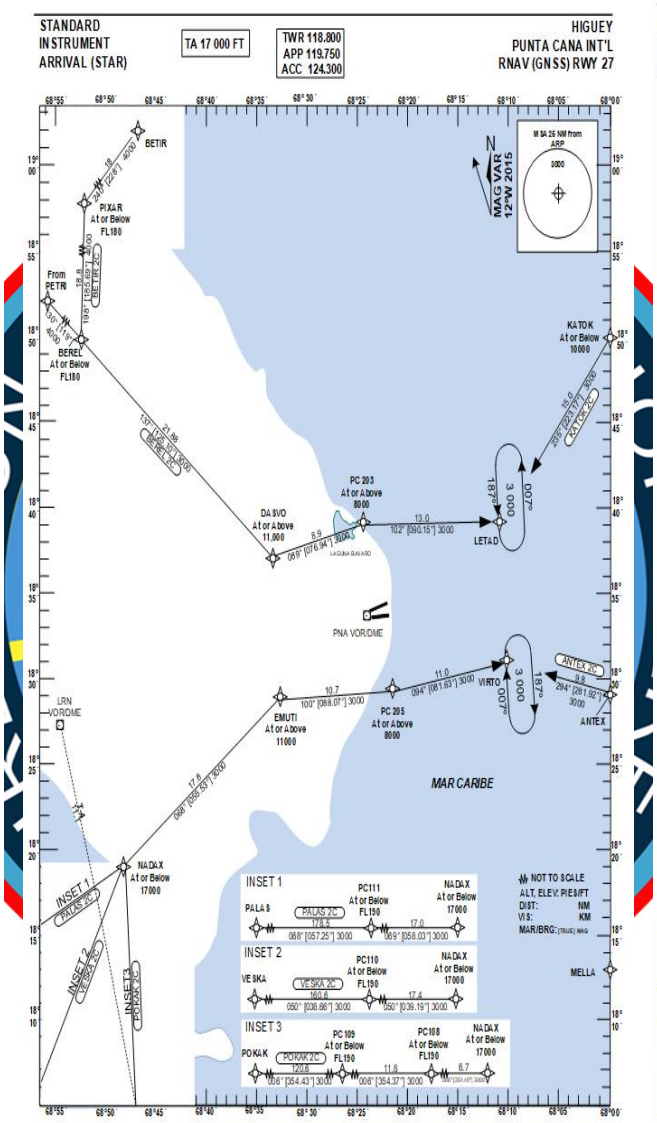

STANDARD
INSTRUMENT
DEPARTURE (SID)
TA 17 000 FT
TWR 118.800
APP 119.750
ACC 124.300
HIGUEY
PUNTA CANA INT'L
RNAV (GNSS) RWY 09
PIXAR
FL230
17,000
CHUMA
MAG VAR
12°W 2015
MALVN
KATOK
At or BELOW
7,000
RETAK
SGO
VOR/DME
LAGUNA
BAVARO
PC101
At or BELOW
5,000
PC102
At or BELOW
5,000
MAROG
PNA VOR/DME
PC103
CDO
VOR/DME
ETBOD
LRN
VOR/DME
PC107
At or BELOW
11,000
PC106
At or BELOW
5,000
PC105
At or BELOW
5,000
PC104
At or BELOW
5,000
ANTEX
PC108
At or ABOVE
13,000
PC110
At or ABOVE
17,000
PALAS
PC109
At or ABOVE
17,000
MELLA
MAR CARIBE
VESKA
POKAK
NOT TO SCALE
ALT, ELEV: FEET/FT
DIST: NM
VIS: KM
MAR/BRG:

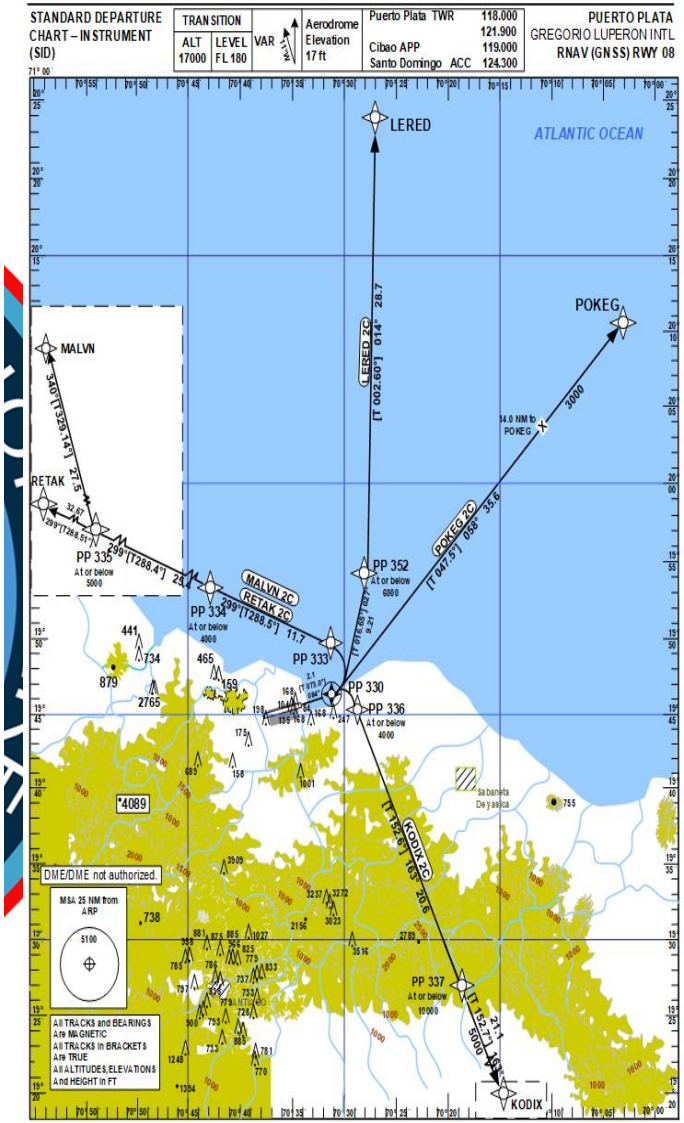

STANDARD
INSTRUMENT
DEPARTURE (SID)
TA 17 000 FT
TWR 118.800
APP 119.750
ACC 124.300
HIGUE
PUNTA CANA INT'
RNAV (GNSS) RWY 2
PIXAR
FL230
FL200
CHUMA
MAG VAR
12°W 2015
MALVN
KATOK
At or Above
13,000
RETAK
SGO
VOR/DME
LAGUNA
BAVARO
PC 202
At or Below
7,000
PC 200
PNA VOR/DME
CDO
VOR/DME
ETBOD
PC 201
At or Below
11,000
LRN
VOR/DME
ANTEX
PC 204
At or Below
7,000
PC108
At or ABOVE
FL200
PC110
At or ABOVE
FL200
PALAS
PC109
At or ABOVE
FL200
MELLA
MAR CARIBE
VESKA
POKAK
NOT TO SCALE
ALT, ELEV: FEET/FT
DIST: NM
VIS: KM
MAR/BRG:

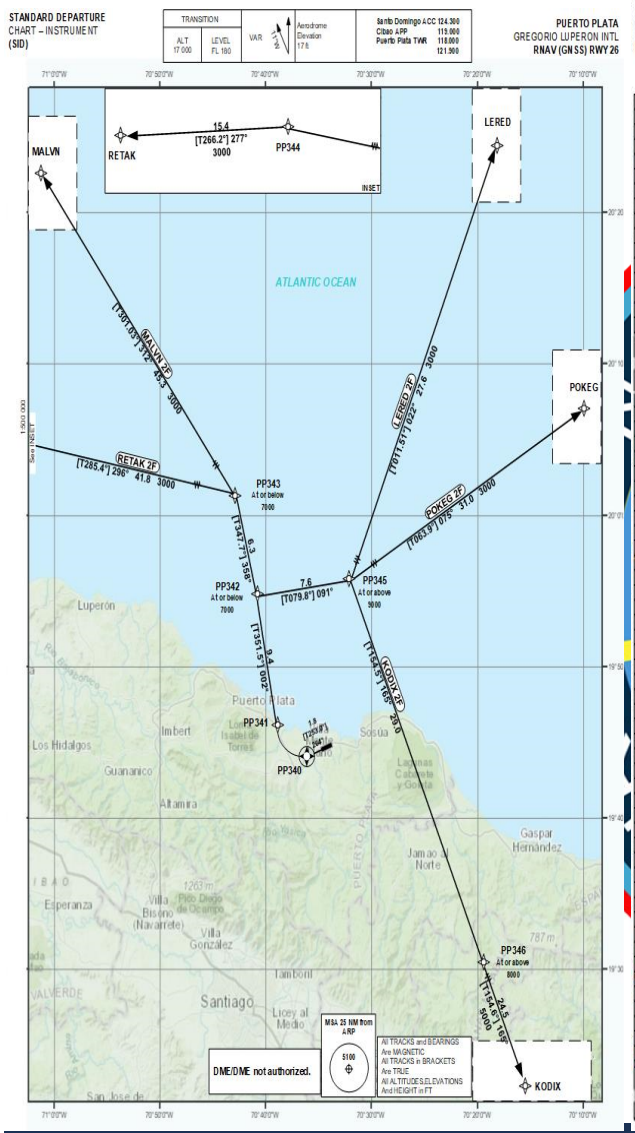


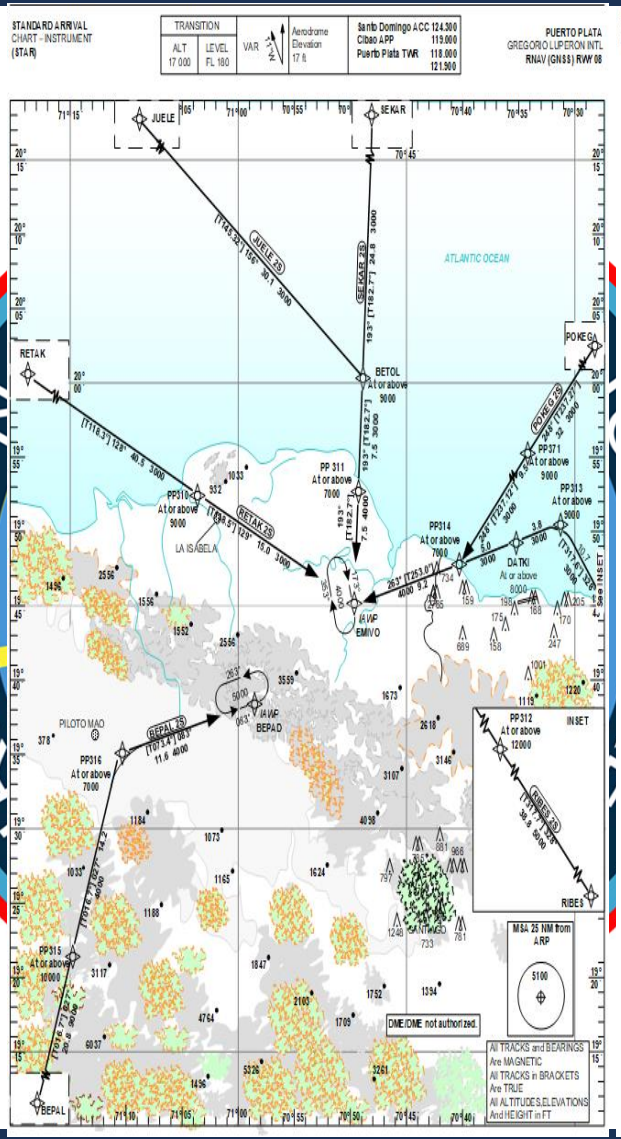
Dirección de Navegación Aérea

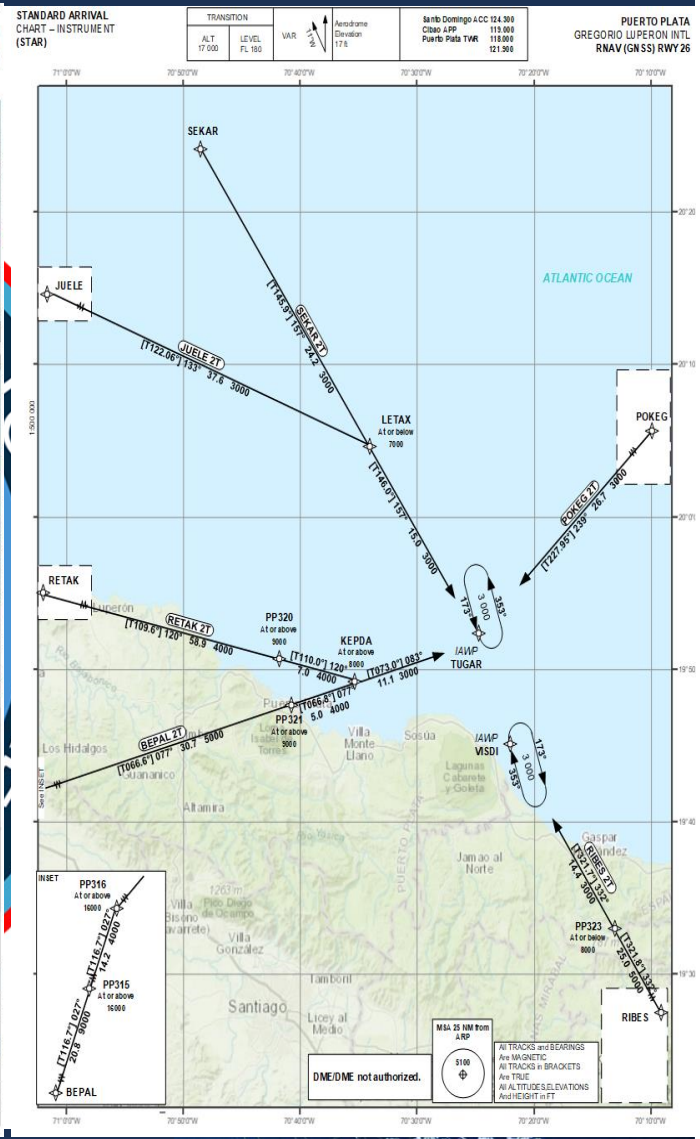

STANDARD
INSTRUMENT
ARRIVAL (STAR)
TA 17 000 FT
TWR 118.800
APP 119.750
ACC 124.300
HIGUEY
PUNTA CANA INT'L
RNAV (GNSS) RWY 26
MAG VAR 12°W 2015
BETIR
PIXAR
At or Below FL180
From PETR
BEREL
At or Below FL180
KATOK
At or Below 10,000
IAWP
APLAL
PC 203
At or Above 8000
AGNAL
At or Above 12000
PNA VOR/DME
IAWP
MESPA
LRN VOR/DME
PC 205
At or Above 8000
ANEBI
At or Above 12000
ANTEX
MAR CARIBE
MELLA
NADAX
At or Below 17000
INSET 1
PALAS
PC111
At or Below FL190
INSET 2
VESKA
PC110
At or Below FL190
INSET 3
POKAK
PC109
At or Below FL190
PC108
At or Below FL190
NOT TO SCALE


STANDARD
INSTRUMENT
ARRIVAL (STAR)
TA 17 000 FT
TWR 118.800
APP 119.750
ACC 124.300
HIGUEY
PUNTA CANA INT'L
RNAV (GNSS) RWY 27
MAG VAR 12°W 2015
BETIR
PIXAR
At or Below FL180
From PETR
BEREL
At or Below FL180
KATOK
At or Below 10000
DAVVO
At or Above 11000
PC 203
At or Above 8000
LETAD
PNA VOR/DME
LRN VOR/DME
EMUTI
At or Above 11000
PC 205
At or Above 8000
VIRTO
ANTEX
MAR CARIBE
MELLA
NADAX
At or Below 17000
INSET 1
PALAS
PC111
At or Below FL190
INSET 2
VESKA
PC110
At or Below FL190
INSET 3
POKAK
PC109
At or Below FL190
PC108
At or Below FL190
NOT TO SCALE


STANDARD DEPARTURE
CHART – INSTRUMENT
(SID)
TRANSITION
ALT 17000
LEVEL FL 180
VAR
Aerodrome Elevation 17 ft
Puerto Plata TWR 118.000
121.900
Cibao APP 119.000
Santo Domingo ACC 124.300
PUERTO PLATA
GREGORIO LUPERON INTL
RNAV (GNSS) RWY 08
ATLANTIC OCEAN
LERED
POKEG
MALVN
RETAK
PP 352
PP 335
PP 334
PP 333
PP 330
PP 336
PP 337
KODIX
DME/DME not authorized.
MSA 25 NM from ARP
All TRACKS and BEARINGS are MAGNETIC
All TRACKS in BRACKETS are TRUE
All ALTITUDES, ELEVATIONS and HEIGHT in FT

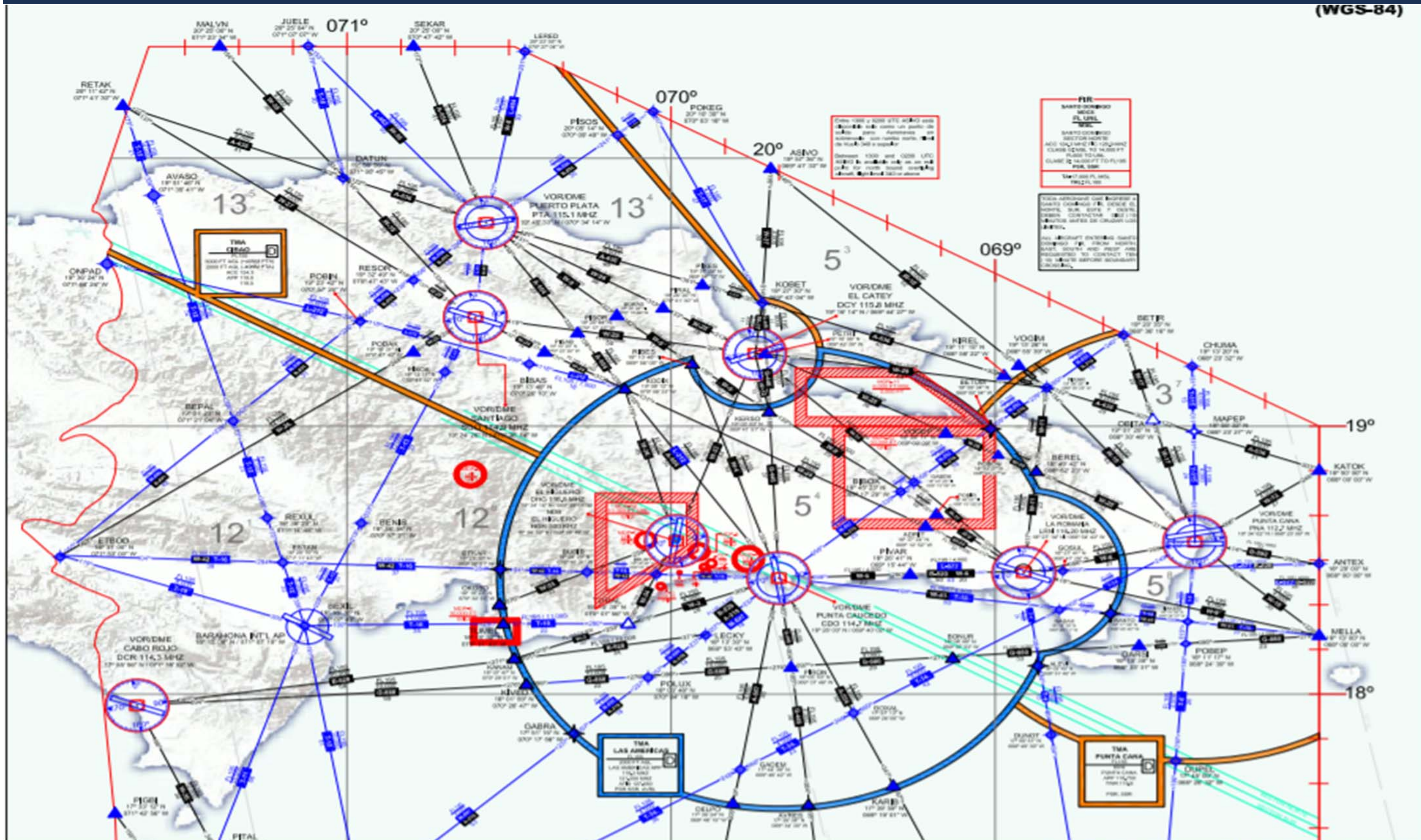

STANDARD DEPARTURE
CHART – INSTRUMENT
(SID)
PUERTO PLATA
GREGORIO LUPERON INTL
RNAV (GNSS) RWY 26
MALVN
LERED
POKEG
RETAK
PP344
PP343
PP342
PP345
PP341
PP340
PP346
KODIX
ATLANTIC OCEAN
DME/DME not authorized.


STANDARD ARRIVAL
CHART – INSTRUMENT
(STAR)
PUERTO PLATA
GREGORIO LUPERON INTL
RNAV (GNSS) RWY 08
JUELE
SEKAR
RETAK
POKEG
BETOL
PP311
PP310
PP314
PP371
PP313
DATKI
LA ISABELA
IAWP
EMIVO
PILOTO MAO
BEPAL
PP316
PP315
PP312
RIBES
INSET
ATLANTIC OCEAN
DME/DME not authorized.


STANDARD ARRIVAL
CHART – INSTRUMENT
(STAR)
PUERTO PLATA
GREGORIO LUPERON INTL
RNAV (GNSS) RWY 26
SEKAR
JUELE
LETAX
POKEG
RETAK
PP320
KEPDA
TUGAR
PP321
IAWP
VISDI
PP323
RIBES
PP316
PP315
BEPAL
INSET
ATLANTIC OCEAN
DME/DME not authorized.

- IDAC redesigned the 3 TMA's that covers the major international airports of Dominican Republic.

IDAC


(WGS-84)
071°
070°
069°
20°
19°
18°
MALVN
JUELE
SEKAR
LERED
RETAK
POKEG
ASIVO
PISOS
DATUN
AVASO
VOR/DME PUERTO PLATA PTA 115.1 MHZ
TMA CIBAO
ONPAD
PORIN
RESOR
KOBET
VOR/DME EL CATEY DCY 115.9 MHZ
KIREL
VOGIM
BETIR
CHUMA
MAPEP
KATOK
ANTEX
MELLA
BEREL
BIBAS
BEPAL
ETBOD
REXUL
VOR/DME SANTIAGO
BARAHONA INT'L AP
VOR/DME CABO ROJO DCR 114.3 MHZ
VOR/DME PUNTA CAUCEDO CDO 114.7 MHZ
VOR/DME PUNTA CANA PNA 112.2 MHZ
LECKY
POLUX
GABRA
PITAL
KARIB
POBEP
TMA LAS AMERICAS
TMA PUNTA CANA
FIR
13
5
12
3

ADDITIONALLY

- IDAC has implemented local PBN routes

- Active cooperation of 2 PBN specialists from IDAC with the ICAO NACC Regional Office in the Development and Implementation of a PBN Airspace Concept Document for The Car Region, under the ICAO Regional Technical Cooperation Project — "Multi-Regional Civil Aviation Assistance Programme (MRAAP)" (RLA/09/801).

- Dominican Republic is ready to reduce the application of the longitudinal separation from 80 NM to 40 NM based on GNSS and the MACH number technique with those adjacent facilities aware of what this type of separation implies.

CONCLUSION

- The meeting is invited to take note of this Information Paper.

THANK YOU!!!