Date:2023-05-02，filtered southbound arrival: 591 flights

Runway	Flight Number
19	293
20L	298
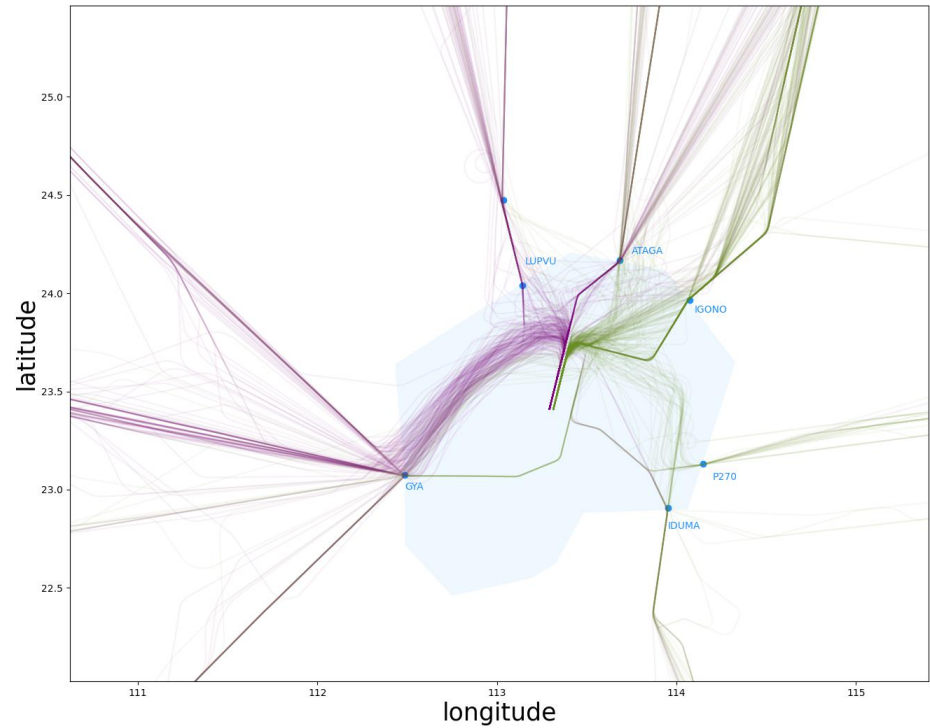
Arrival Hour	flight numbers		Arrival Hour	flight numbers
0	33		12	35
1	18		13	27
2	6		14	40
3	5		15	35
4	2		16	34
5	1		17	32
6	2		18	32
7	8		19	35
8	18		20	31
9	26		21	30
10	28		22	38
11	37		23	38

Extended TMA+Optimized Route Structure ➡ eliminating vectoring & guaranteeing capacity
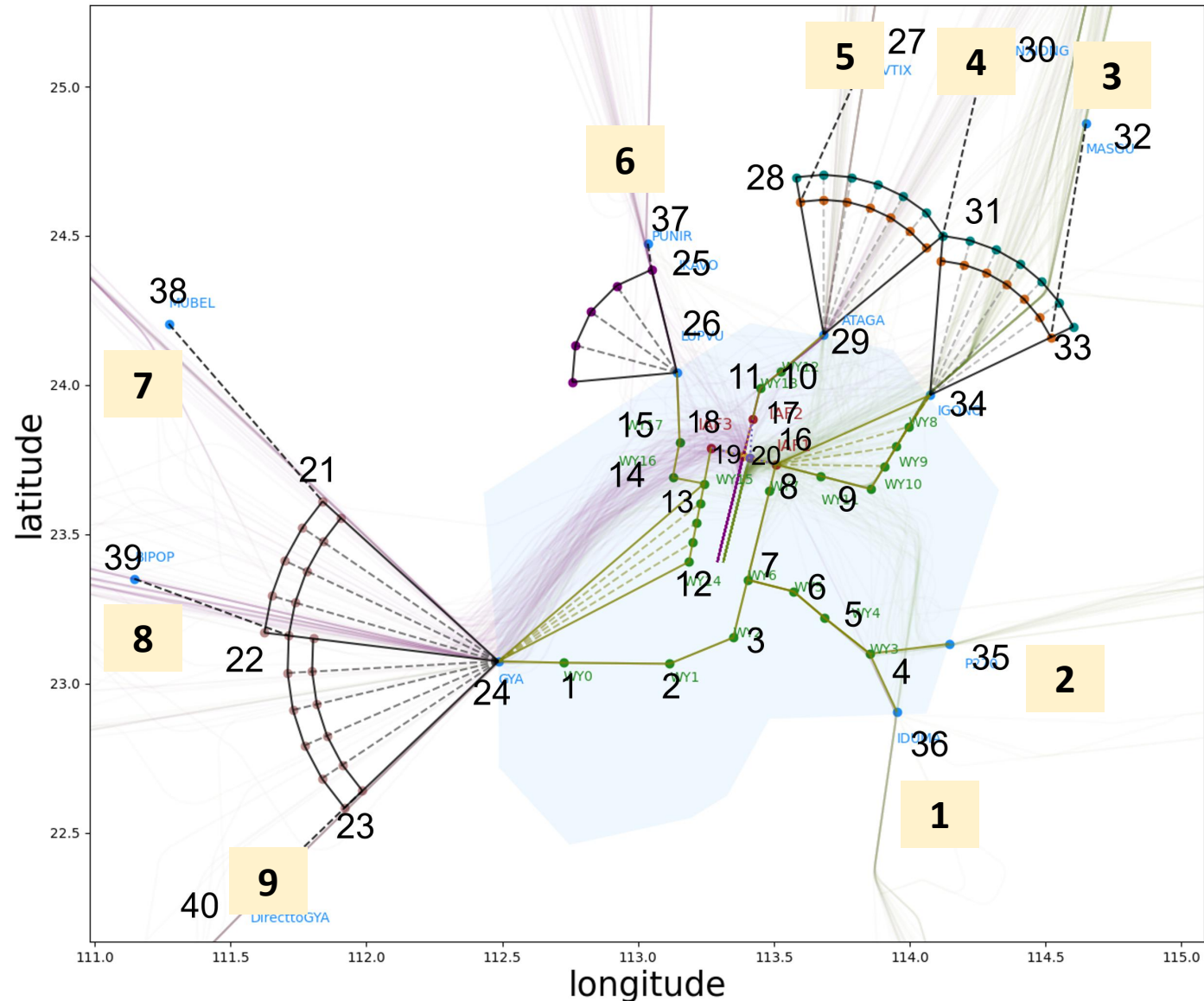
TYPICAL WAYPOINTS

9 entering points:

27/30/32/35/36/37/38/39/40 ,

corresponding to entry number 1-9

2 end points: 19/20:

waypoint19 on the extended line of RWY19

waypoint20 on the extended line of RWY20L

DETAILS OF ROUTE STRUCTURES

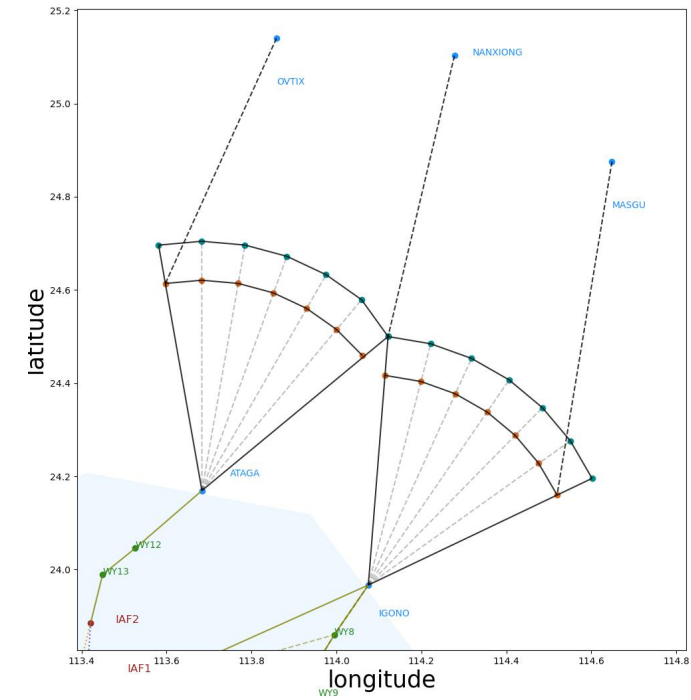**Structure type:**

0-normal leg, 1-Single PMS,

2-Multi-PMS, 3-Shortcut

For structure type2:

PMS angle1=north flying leg,
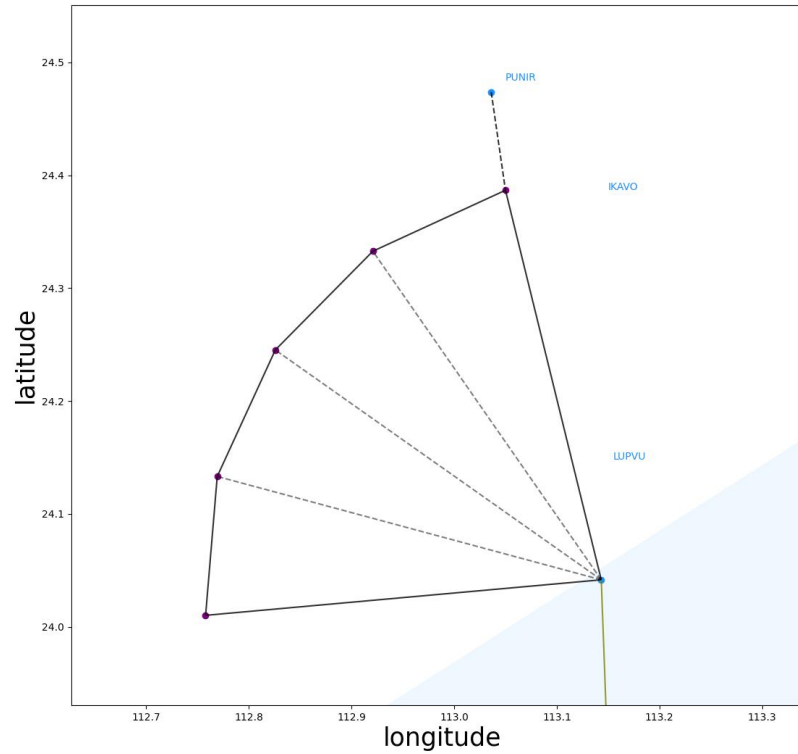
PMS angle2=south flying leg

PMS Parameters

Detail of North PMS

$\alpha = 60°$

$R_{outer} = 32nm, R_{inner} = 27nm$

$\upsilon = 250 ft, \begin{array}{l} t_{outer} \approx 8\min \\ t_{inner} \approx 7\min \end{array}$

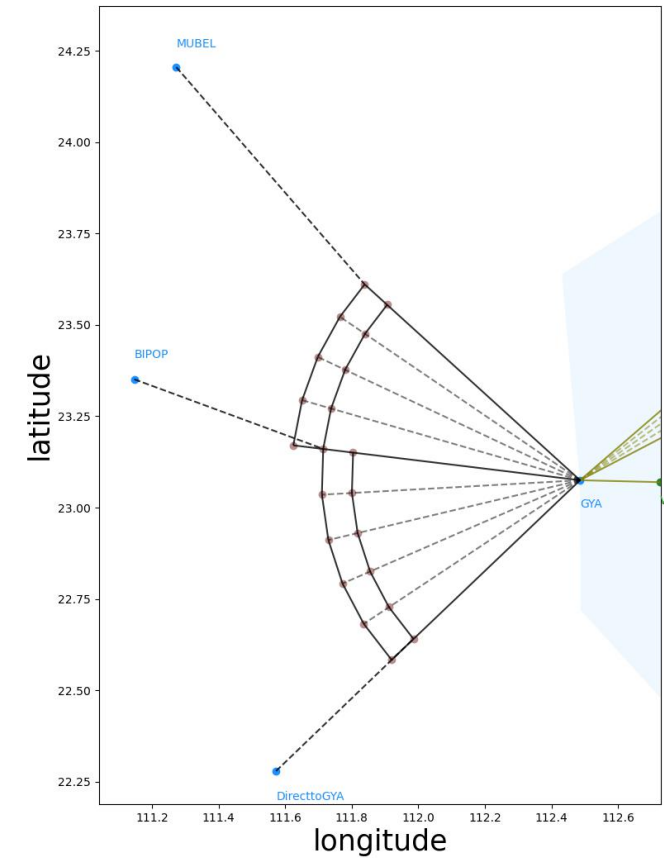**Detail of Northwest PMS**

$\alpha = 80°$

$R = 21.25nm$

$\upsilon = 250 ft, t \approx 7.1\min$

Detail of West PMS

$\alpha_{north} = 35°, \alpha_{south} = 50°$

$R_{outer} = 48nm, R_{middle} = 43nm, R_{inner} = 38nm$

$\upsilon = 250 ft, \begin{array}{l} t_{outer\max} \approx 7\min \\ t_{middle\max} \approx 9\min \\ t_{inner\max} \approx 8\min \end{array}$

Dealing with Abnormal Flights
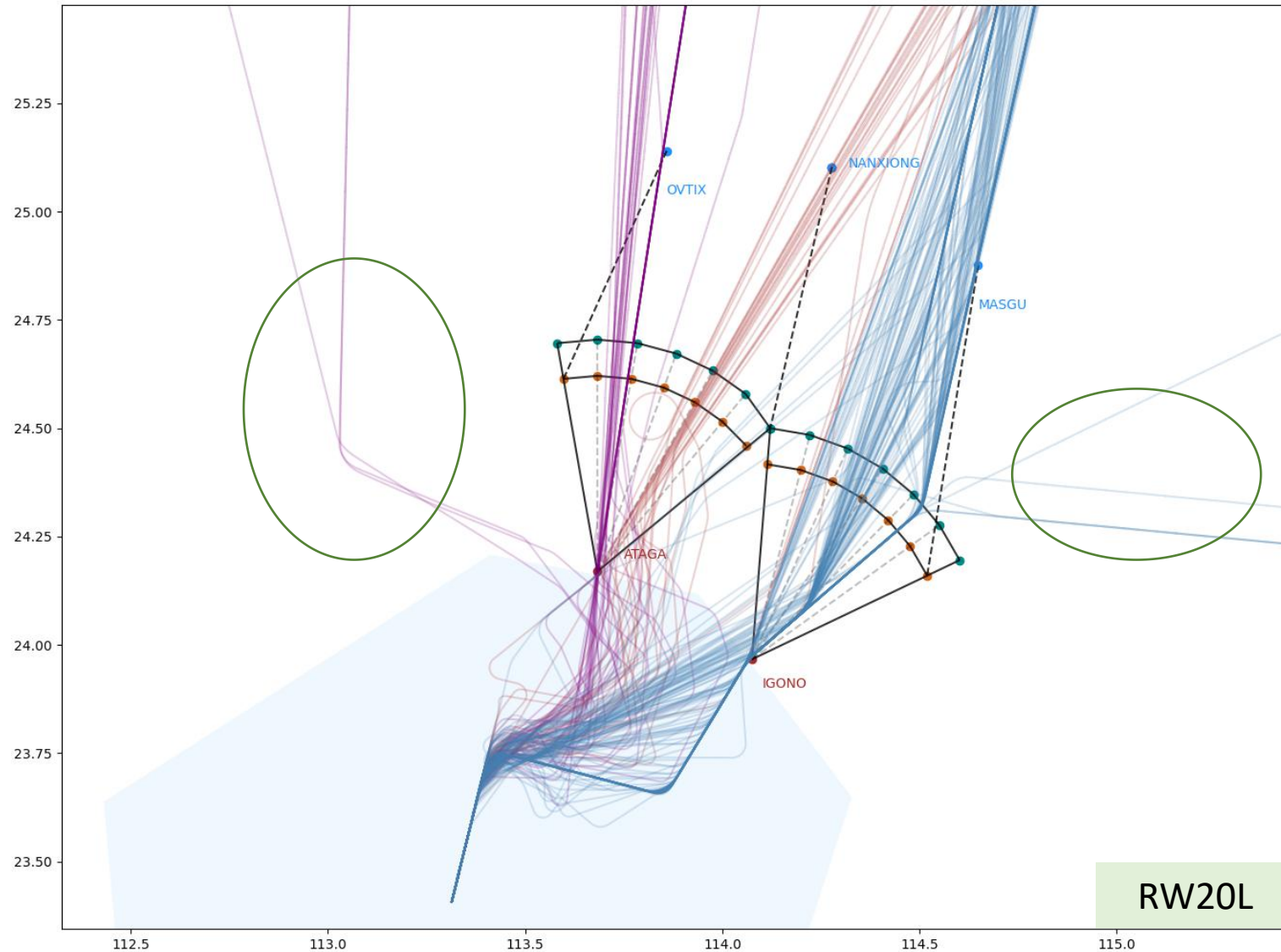
entry point 3: 4 abnormal flights
entry point 5: 3 abnormal flights

Randomly sampling from the flight database which has the same wake turbulance category&same entry point&same landing runway to substitute abnormal flights and keep the traffic volume & arrival time unchanged