

Suvarnabhumi Airport Runway Maintenance

Air Traffic Management Initiative &
Two-Week Review
27 June 2012





AEROTHAI

Aeronautical Radio of Thailand LTD.

EXSON

D5.9 SVB

N134430

E100-46

MAX

Reference AIP Supplement A9/12

Suvarnabhumi International Airport Runway Maintenance Details

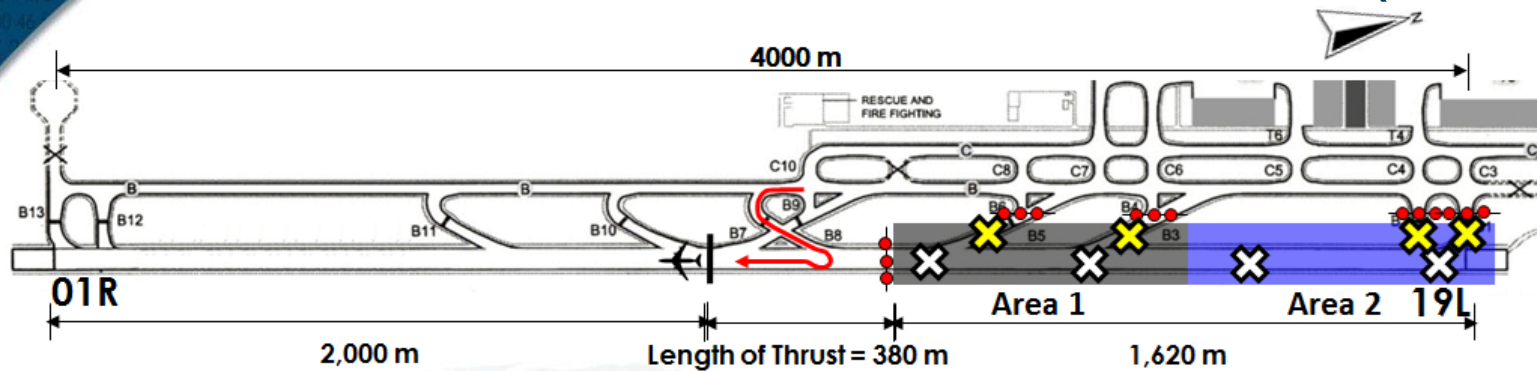
27 Jun 2012

2

Runway 19L/01R Maintenance "Area 1"

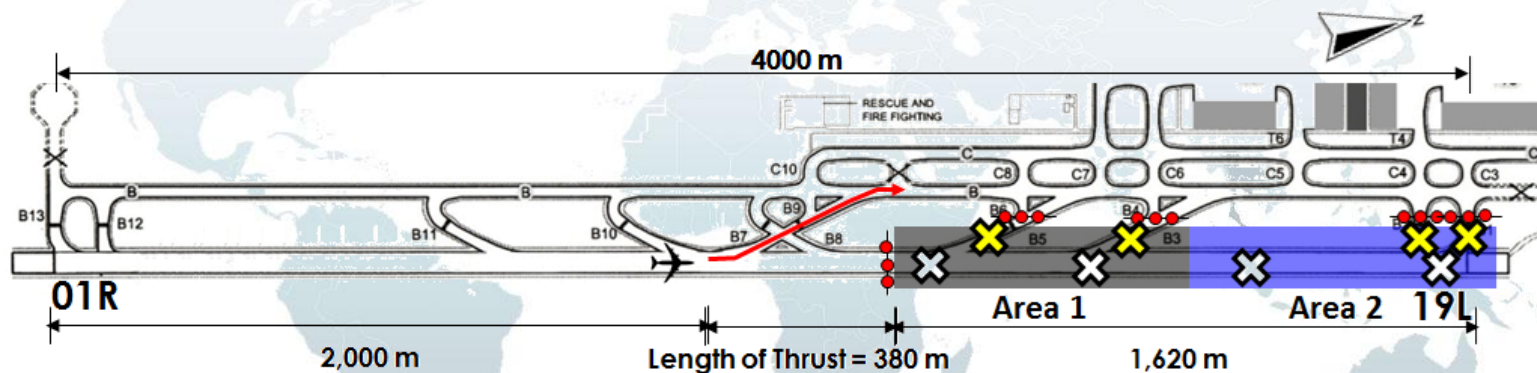
11 June 2012 0001UTC – 20 July 2012 1000UTC

(Tentative)



LEGEND	
BARRICADE	●●●
TAKEOFF POSITION	TKOF PSN
CLOSED AREA	×

Construction work at Area 1



LEGEND	
BARRICADE	●●●
CLOSED AREA	×

Construction work at Area 1



Runway Management: “Area 1”

Runway 19

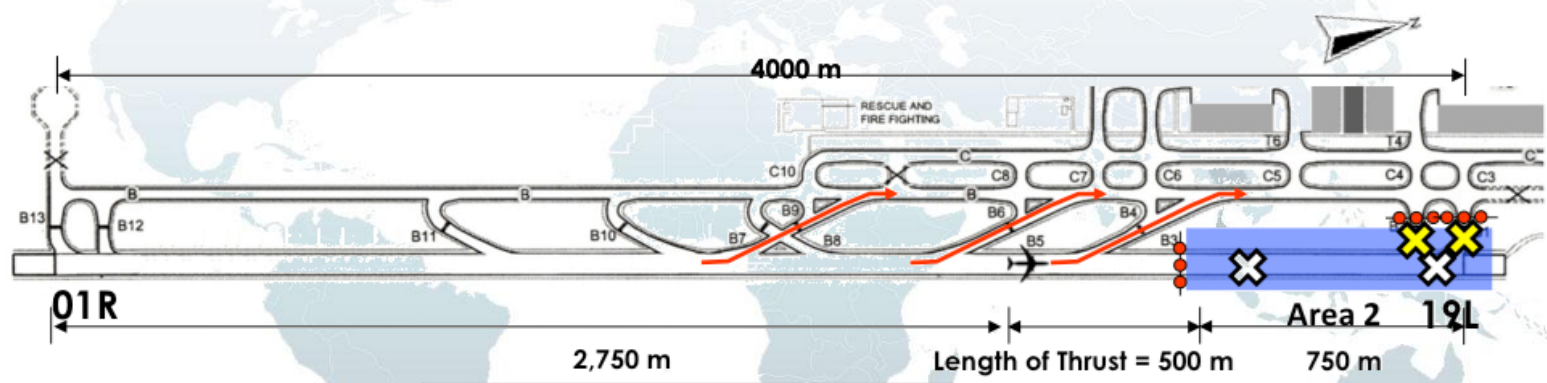
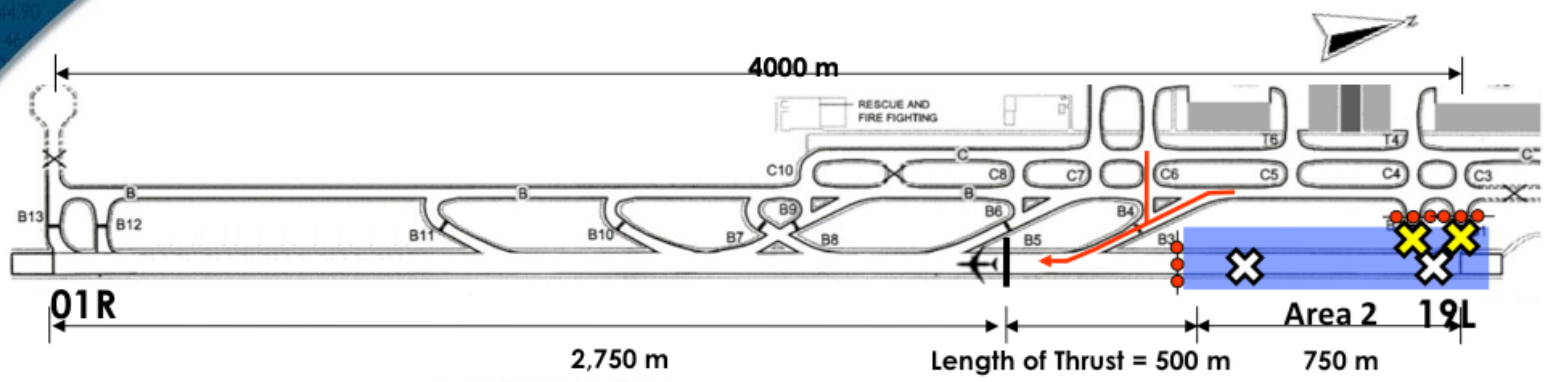
- **Runway 19R**
 - Normal Operations
- **Runway 19L**
 - Departure
 - TORA: 2,000 m
 - TODA: 2,550 m
 - ASDA: 2,000 m
 - Operation: H24
 - *Not Usable for landing*

Runway 01

- **Runway 01L**
 - Normal Operations
- **Runway 01R**
 - Landing
 - LDA: 1,775 m
 - Operation: Sunrise to Sunset
 - *Not Usable for Departure*

Runway 19L/01R Maintenance "Area 2"

20 July 2012 0001UTC – 9 August 2012 1000UTC





Runway Management: “Area 2”

Runway 19

- **Runway 19R**
 - Normal Operations
- **Runway 19L**
 - Departure
 - TORA: 2,750 m
 - TODA: 3,300 m
 - ASDA: 2,750 m
 - Operation: H24
 - *Not Usable for landing*

Runway 01

- **Runway 01L**
 - Normal Operations
- **Runway 01R**
 - Landing
 - LDA: 2,750 m
 - Operation: Sunrise to Sunset
 - *Not Usable for Departure*



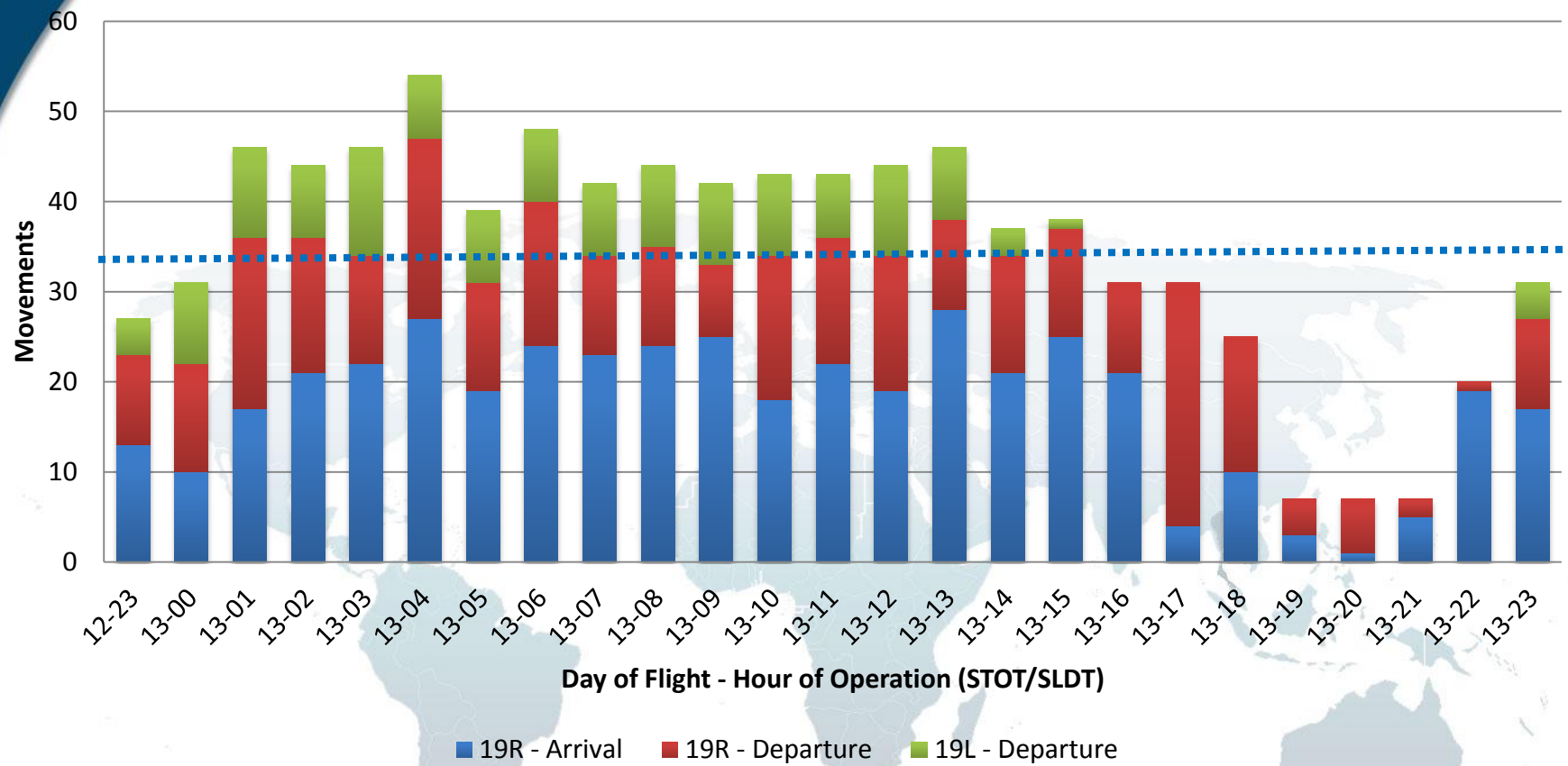
EXSON
D5.9 SVB
N134430
E100-46
MAX

NOTAM A1797/12

Anticipated Effect and Mitigation Plan

Flight Schedule: 13 June 2012

Flight Schedule - Suvarnabhumi Airport 12 June 2300UTC - 13 June 2259UTC (844 flights)





Departure / Arrival Time Window

16 Jun 2012 - No Rush.xlsx - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Developer Acrobat Design

G229 41

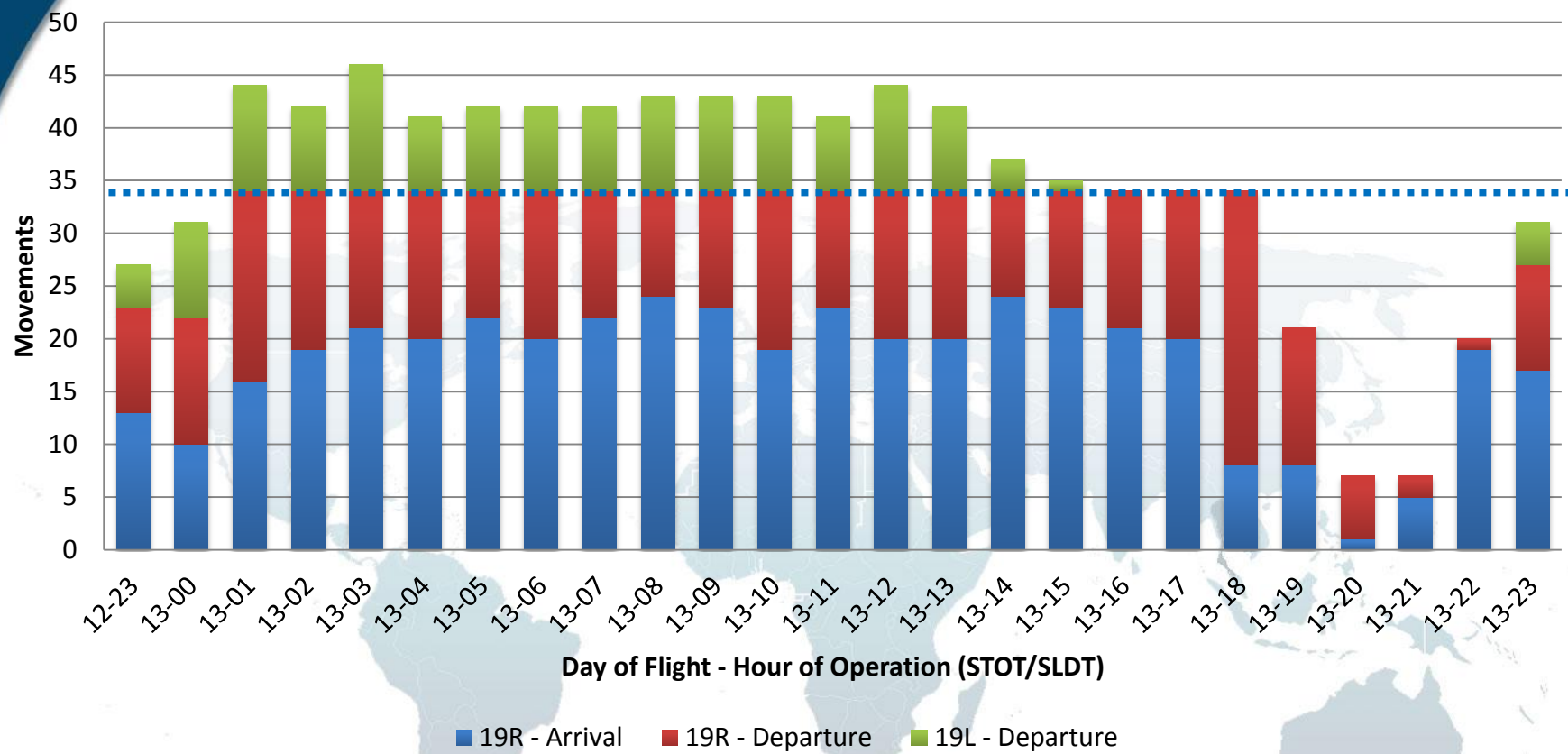
	A	B	C	D	E	F	G	H	I	M	S	T
1	CallSign	AircraftType	MovementType	ADEP/ADES	STD/STA	STOT/SLDT	Delay	CTOT/CLDT	COBT/CIBT	COBT/CIBT Window	Runway	
224	OEA8116	B733	Departure	VTCT	08:50	09:10	0	09:10	08:50	16-08:30-09:00	19L	
225	RSY9618	B752	Departure	UNNT	08:50	09:10	41	09:51	09:31	16-09:30-10:00	19R	
226	AIQ3724	A320	Departure	VVTS	08:55	09:15	0	09:15	08:55	16-08:30-09:00	19L	
227	THA030	B734	Departure	VTUU	09:00	09:20	0	09:20	09:00	16-09:00-09:30	19L	
228	THA606	B744	Departure	VHHH	09:00	09:20	45	10:05	09:45	16-09:30-10:00	19R	
229	THA678	A333	Departure	ZGGG	09:00	09:20	41	10:01	09:41	16-09:30-10:00	19R	
230	CPA712	B773	Departure	VHHH	09:05	09:25	42	10:07	09:47	16-09:30-10:00	19R	
231	BKP951	A319	Departure	VTSM	09:10	09:30	0	09:30	09:10	16-09:00-09:30	19L	
232	AIQ3364	A320	Departure	VTUD	09:15	09:35	0	09:35	09:15	16-09:00-09:30	19L	
233	RJA182	A330	Departure	VHHH	09:15	09:35	41	10:16	09:56	16-09:30-10:00	19R	
234	THA517	A330	Departure	OMDB	09:15	09:35	45	10:20	10:00	16-10:00-10:30	19R	
235	EVA068	B773	Departure	RCTP	09:25	09:45	46	10:31	10:11	16-10:00-10:30	19R	
236	THA409	B773	Departure	WSSS	09:25	09:45	50	10:35	10:15	16-10:00-10:30	19R	
237	AIQ3861	A320	Departure	VHHH	09:30	09:50	48	10:38	10:18	16-10:00-10:30	19R	
238	BKP179	A319	Departure	VTSM	09:30	09:50	0	09:50	09:30	16-09:30-10:00	19L	
239	OEA200	B744	Departure	VHHH	09:40	10:00	46	10:46	10:26	16-10:00-10:30	19R	
240	THA417	B773	Departure	WMKK	09:40	10:00	50	10:50	10:30	16-10:30-11:00	19R	
241	AIQ3505	A320	Departure	WSSS	09:45	10:05	46	10:51	10:31	16-10:30-11:00	19R	
242	THA249	A306	Departure	VTSG	09:45	10:05	47	10:52	10:32	16-10:30-11:00	19R	
243	AIQ3772	A320	Departure	VYYY	09:50	10:10	47	10:57	10:37	16-10:30-11:00	19R	
244	CES542	A320	Departure	ZSPD	09:50	10:10	50	11:00	10:40	16-10:30-11:00	19R	
245	THA217	B744	Departure	VTSP	09:50	10:10	51	11:01	10:41	16-10:30-11:00	19R	
246	AXM839	A320	Departure	WMKK	09:55	10:15	0	10:15	09:55	16-09:30-10:00	19L	
247	BKP277	A320	Departure	VTSP	09:55	10:15	0	10:15	09:55	16-09:30-10:00	19L	

Traffic Demand (Runway) Expected Delay Delay Distribution Full Data

Ready 90%

Managed Schedule: 13 June 2012

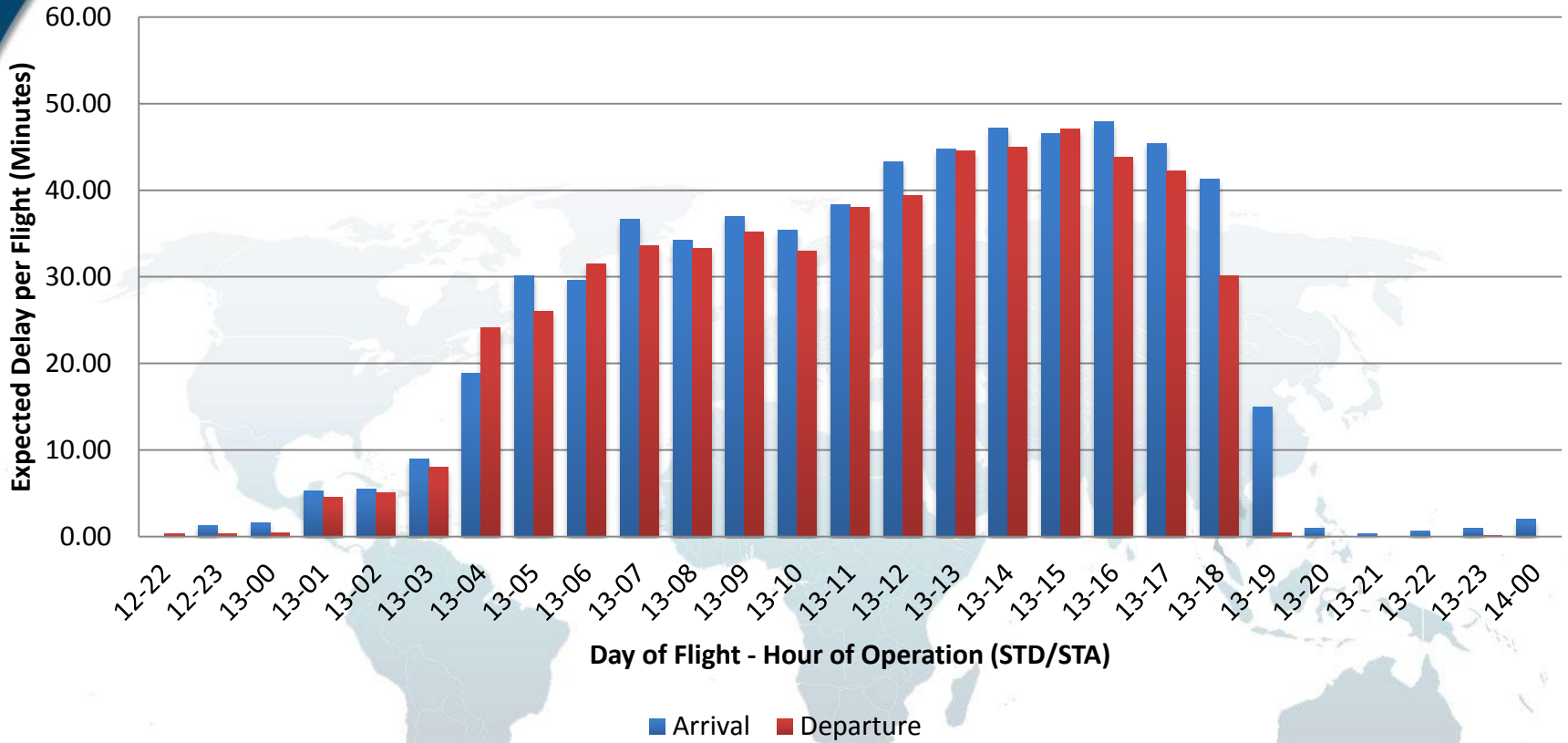
Managed Schedule - Suvarnabhumi Airport 12 June 2300UTC - 13 June 2259UTC (844 flights)





Expected Delay: 13 June 2012

Expected Delay - Suvarnabhumi Airport 12 June 2300UTC - 13 June 2259UTC (844 flights)





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N13 44.30

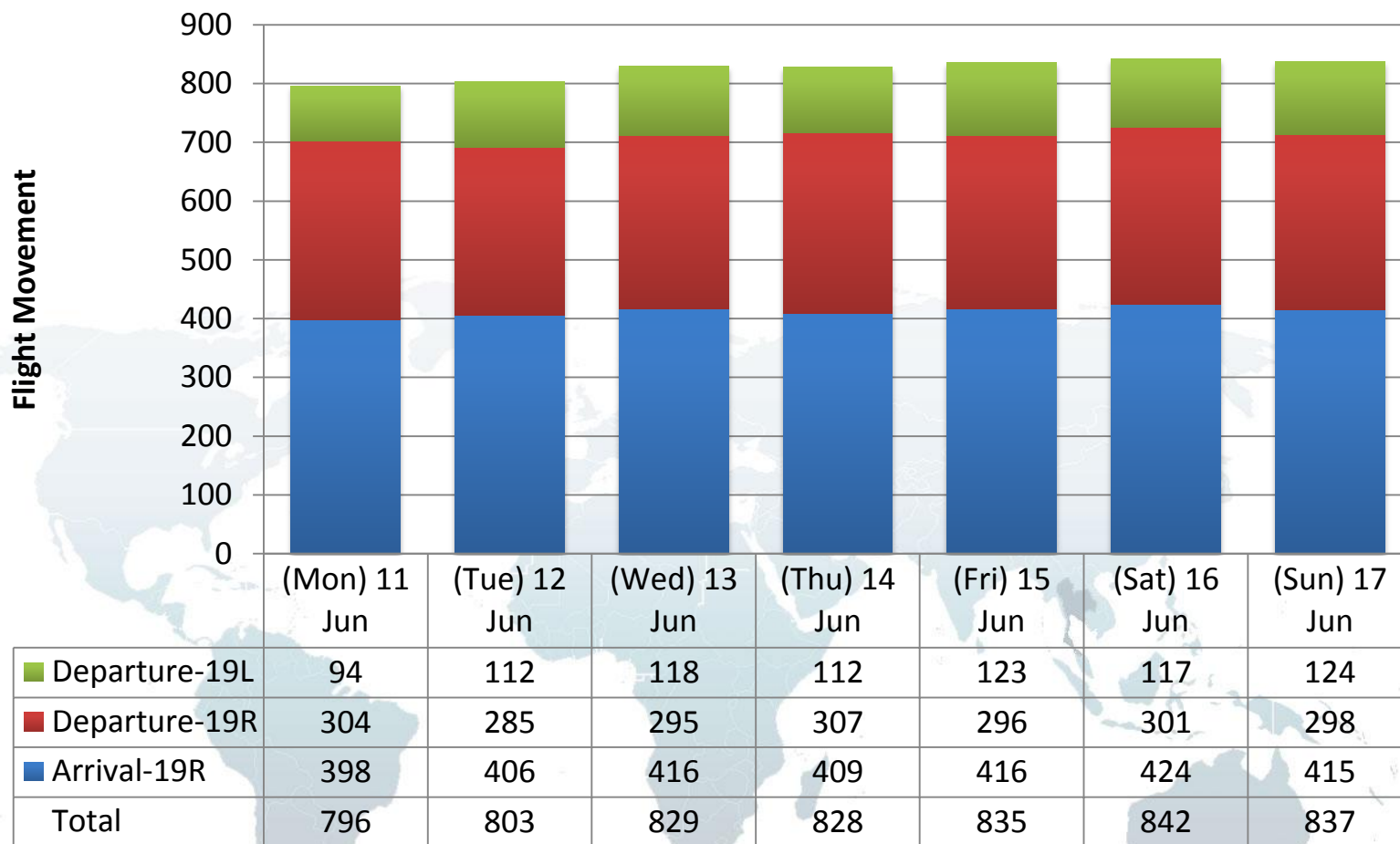
E100 46

MAX

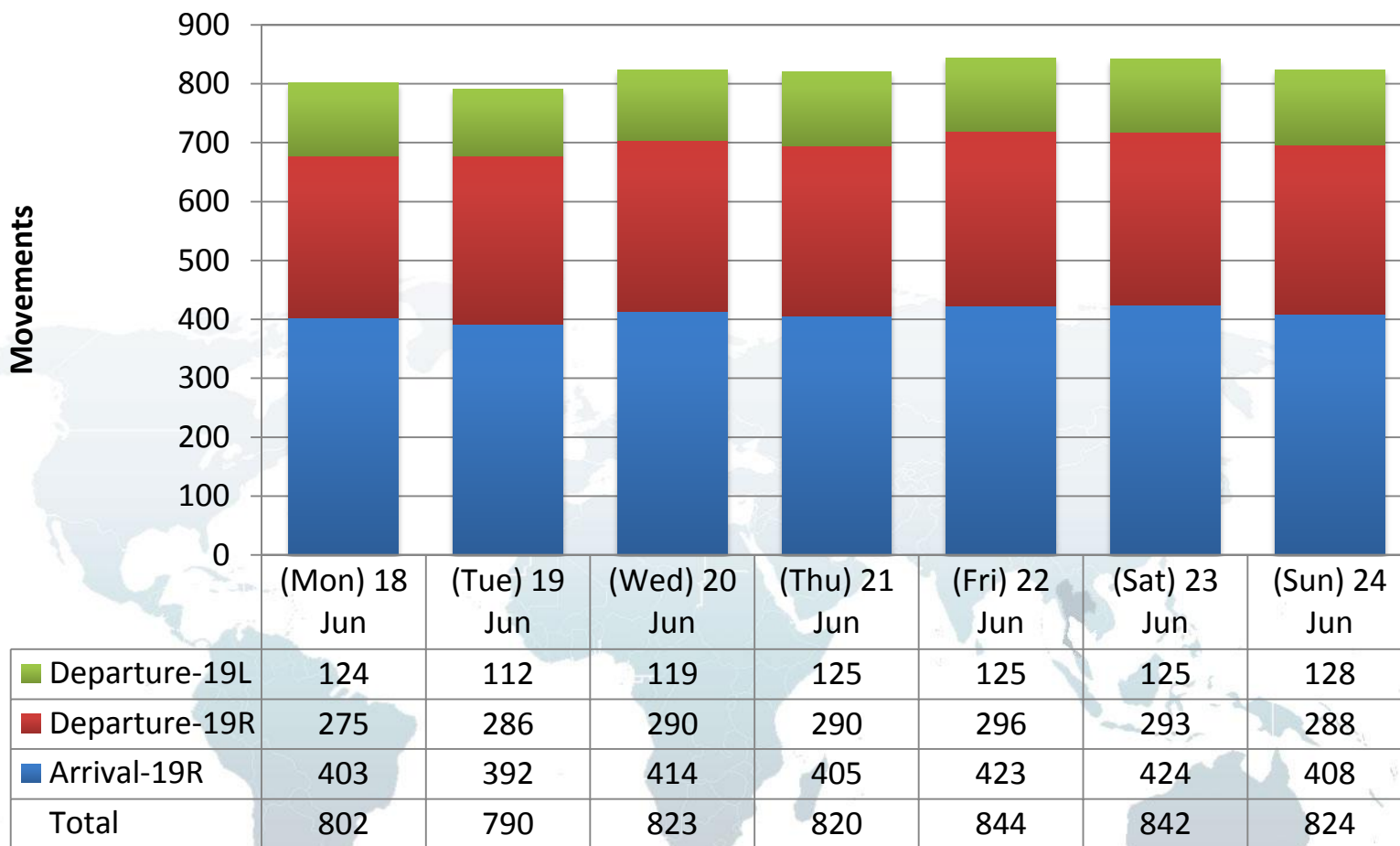
Two-Week Review: 11-24 June 2012

Results so far...

Daily Traffic & Runway Utilization

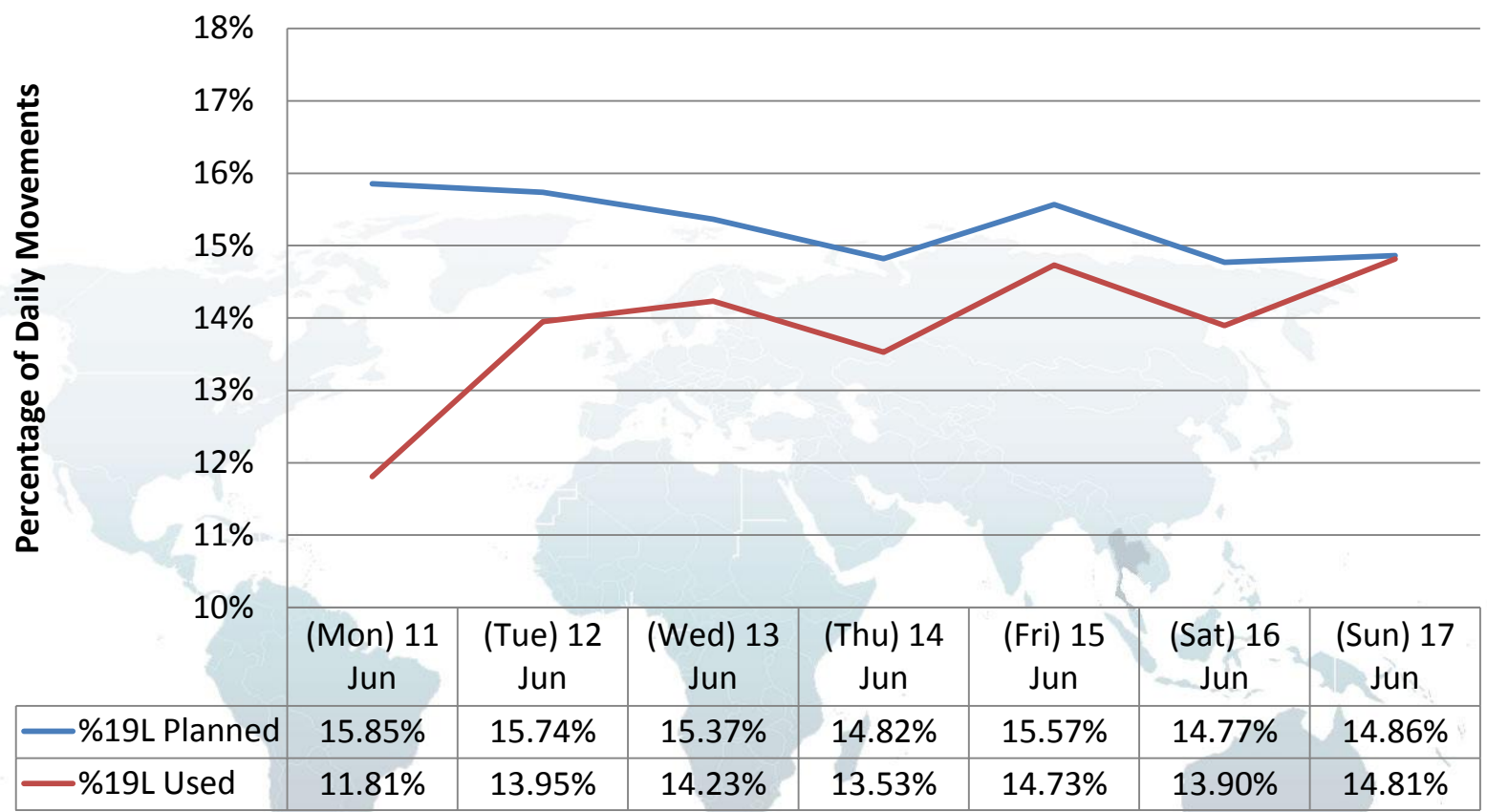


Daily Traffic & Runway Utilization



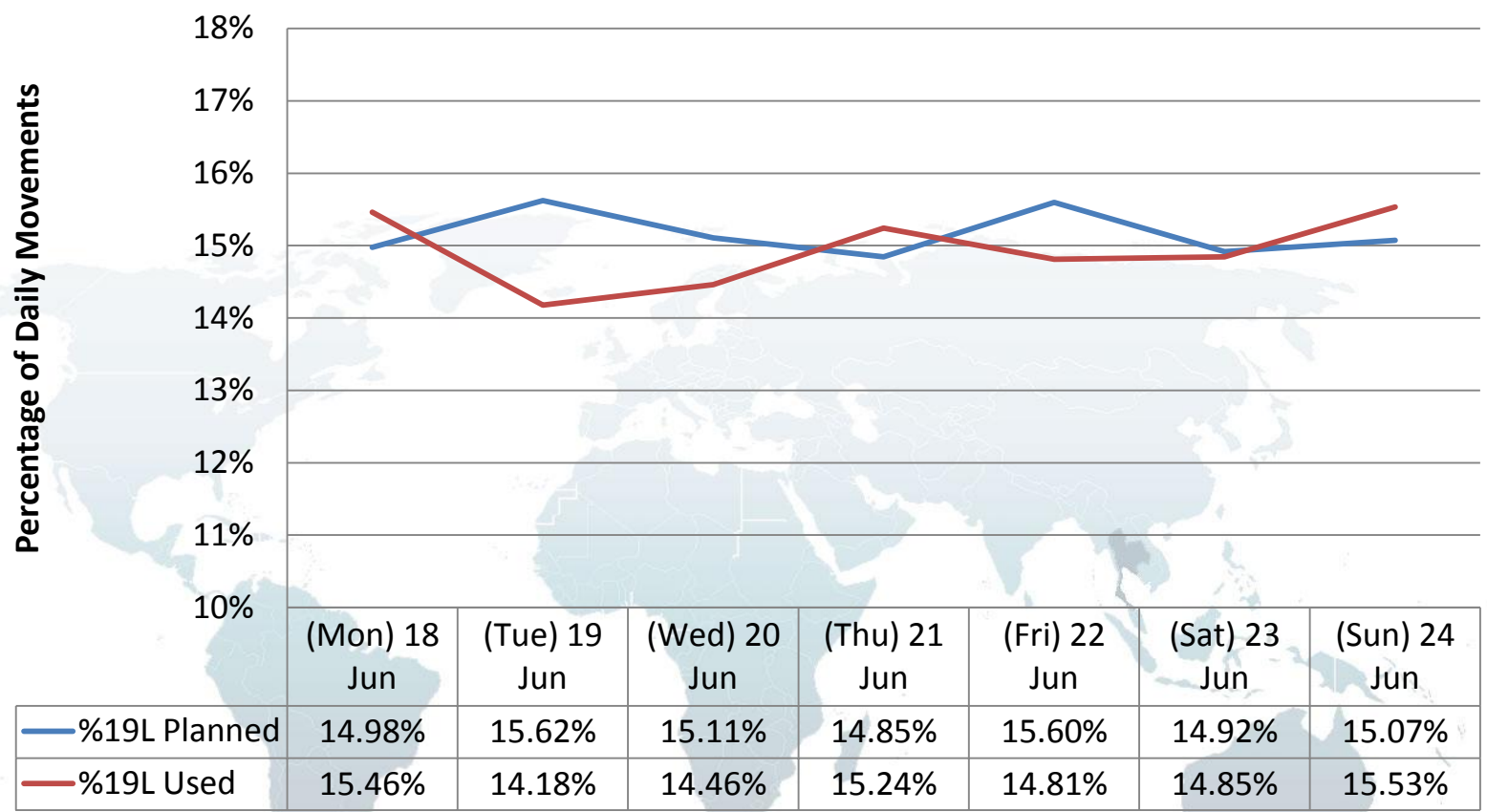
Utilization of Eastern Runway 19L

Planned and Actual Utilization of Eastern Runway 19L



Utilization of Eastern Runway 19L

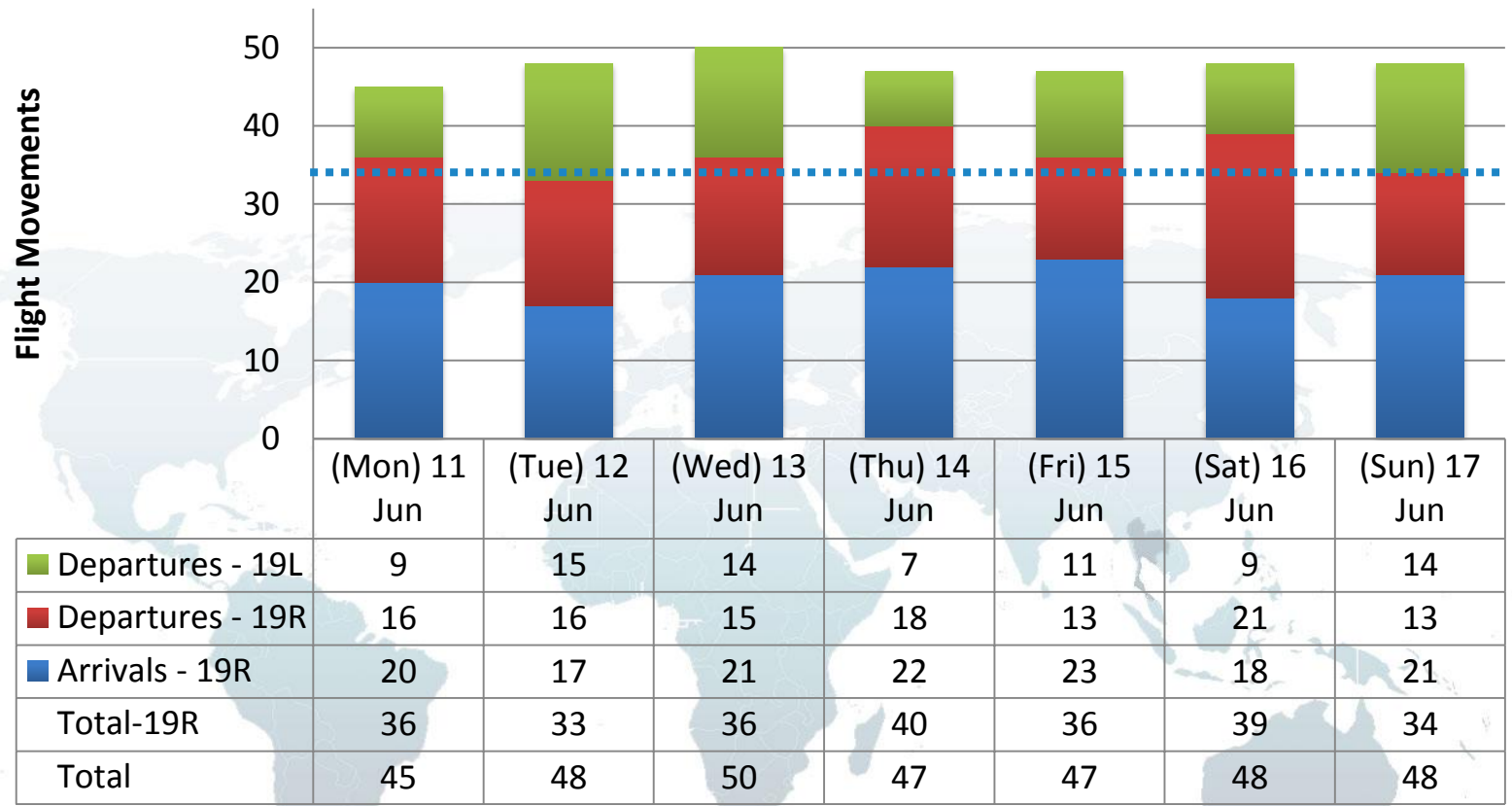
Planned and Actual Utilization of Eastern Runway 19L





Peak Hourly Traffic

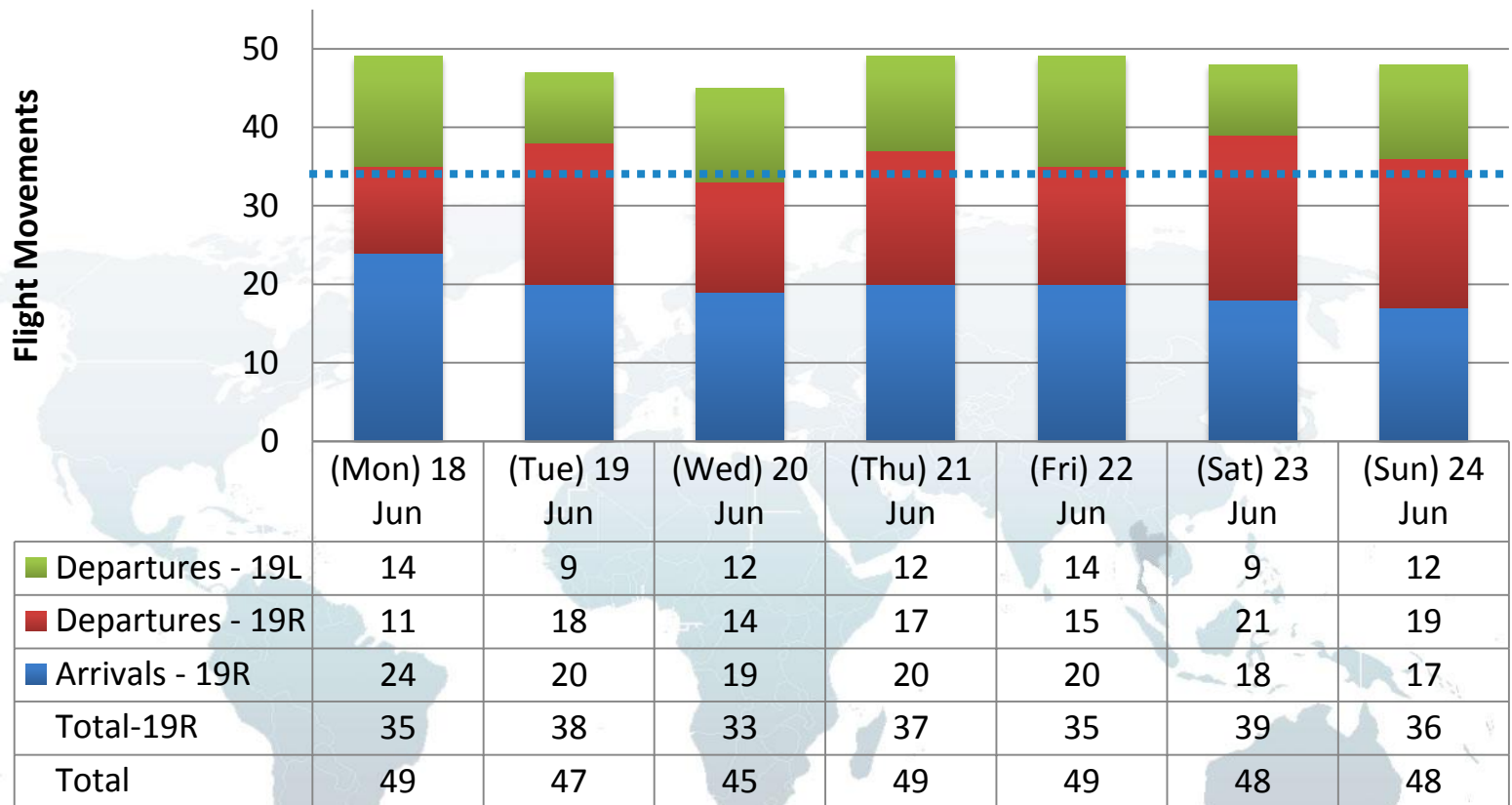
Peak Hourly Traffic





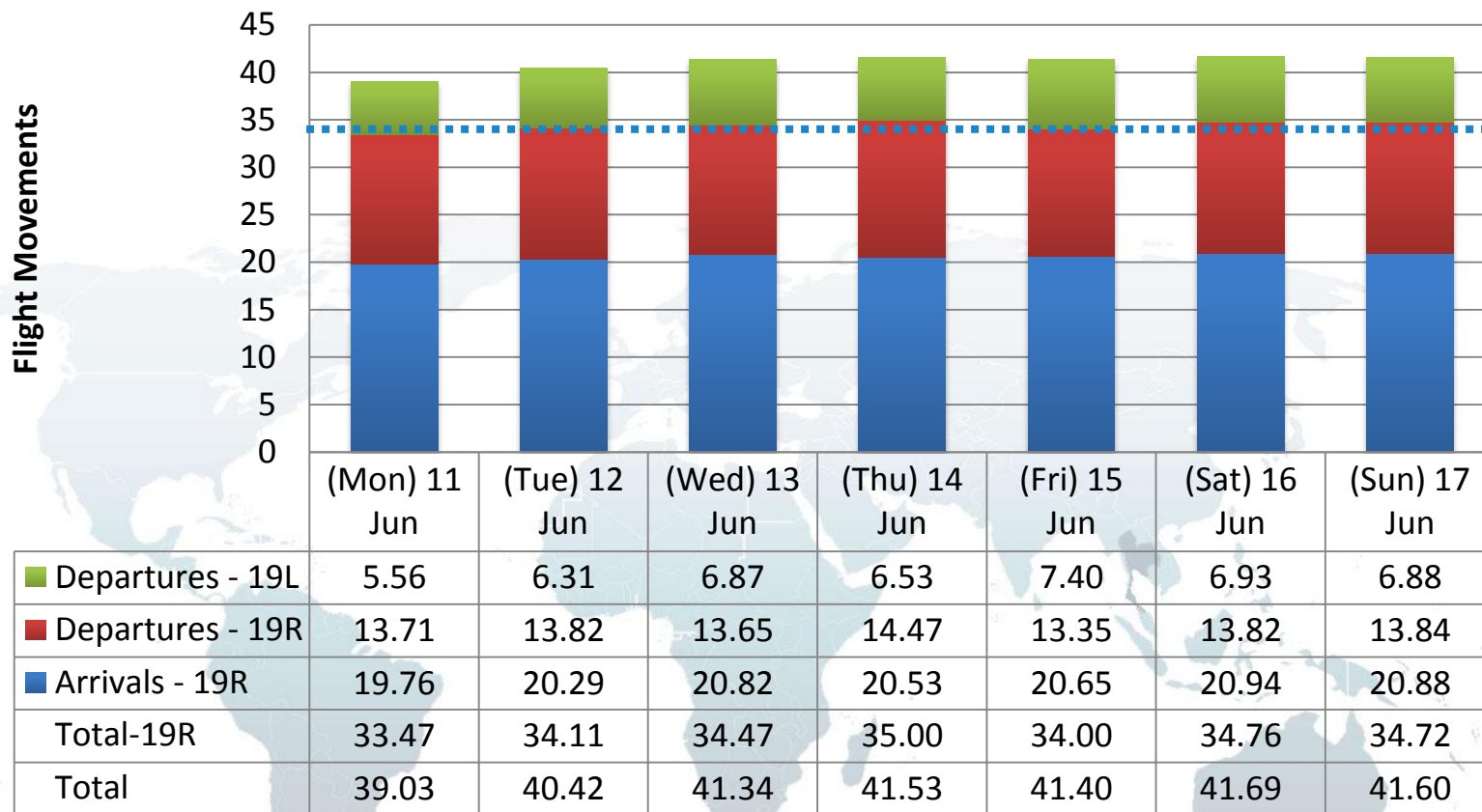
Peak Hourly Traffic

Peak Hourly Traffic



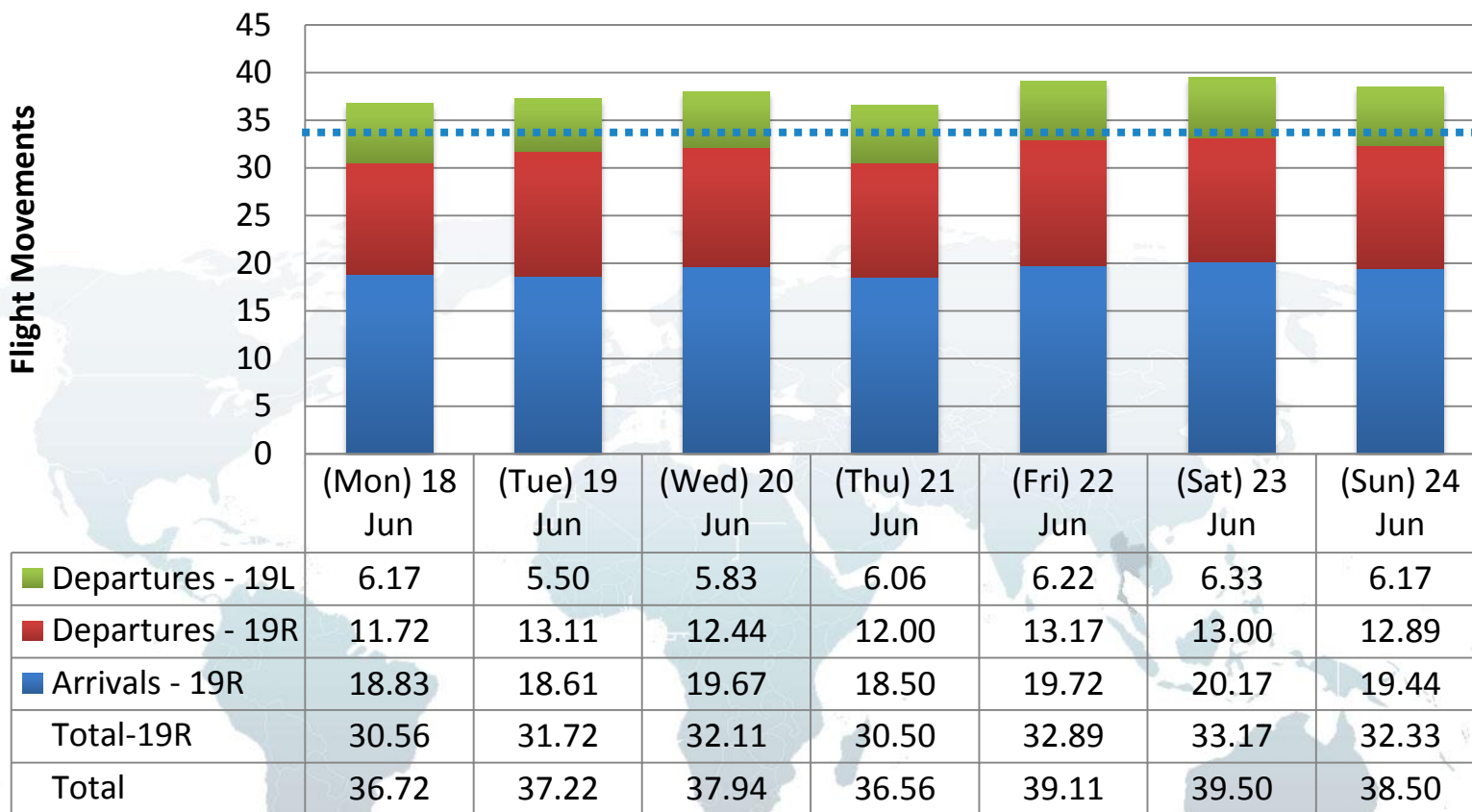
Average Traffic During Peak Hours (0100-1759UTC)

Average Traffic During Peak Hour (0100-1759UTC)



Average Traffic During Peak Hours (0100-1759UTC)

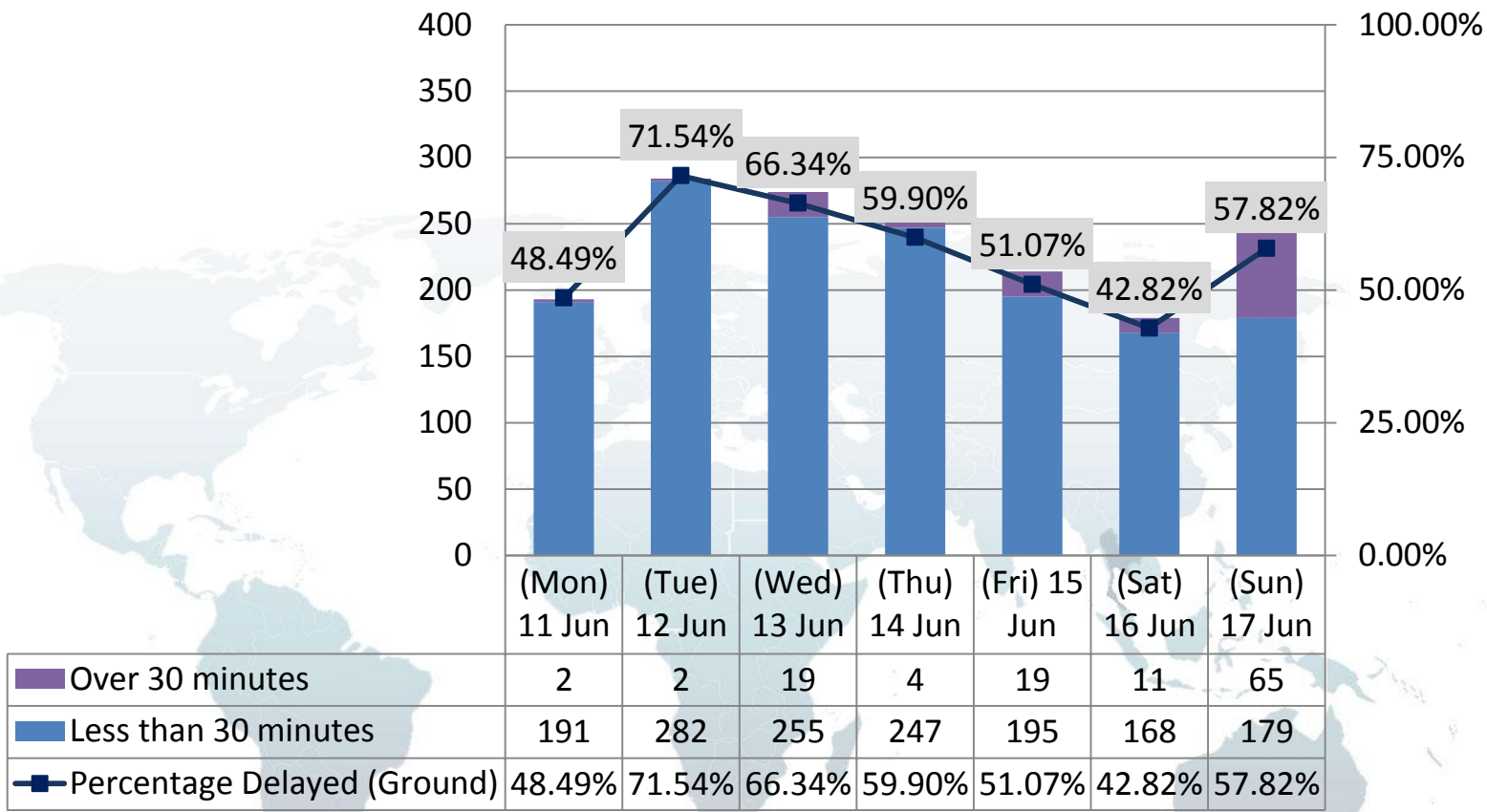
Average Traffic During Peak Hour (0100-1759UTC)



Ground Delay (Departures)

Week 1: 11 – 17 June 2012

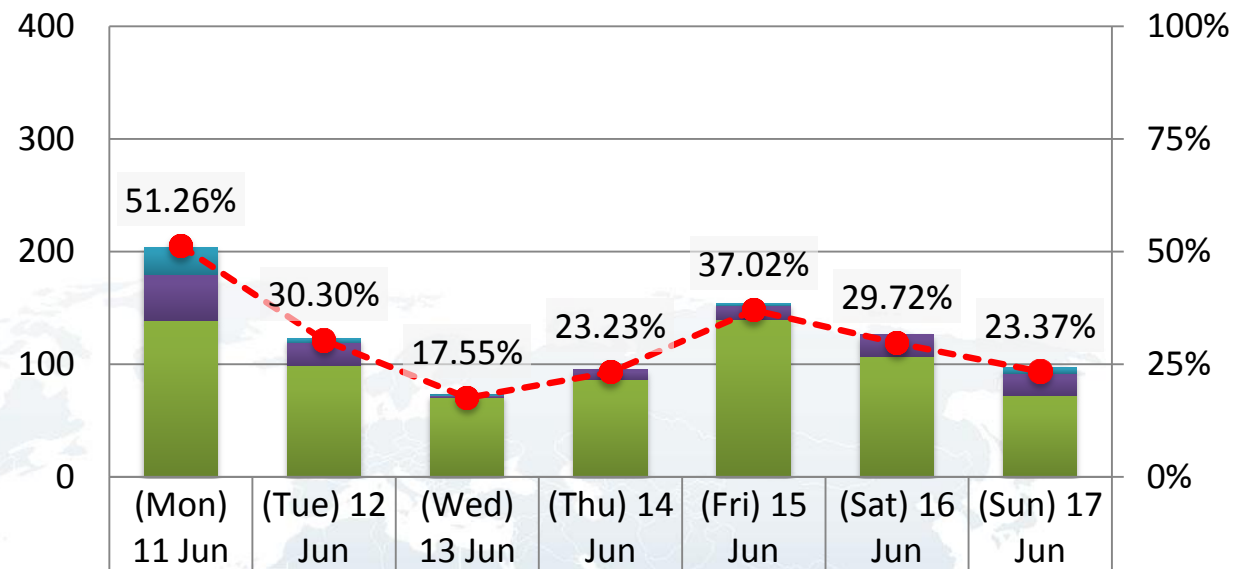
Ground Delay Statistics affecting Departures



Airborne Delay (Arrivals)

Week 1: 11 – 17 June 2012

Airborne Delay (Arrivals)

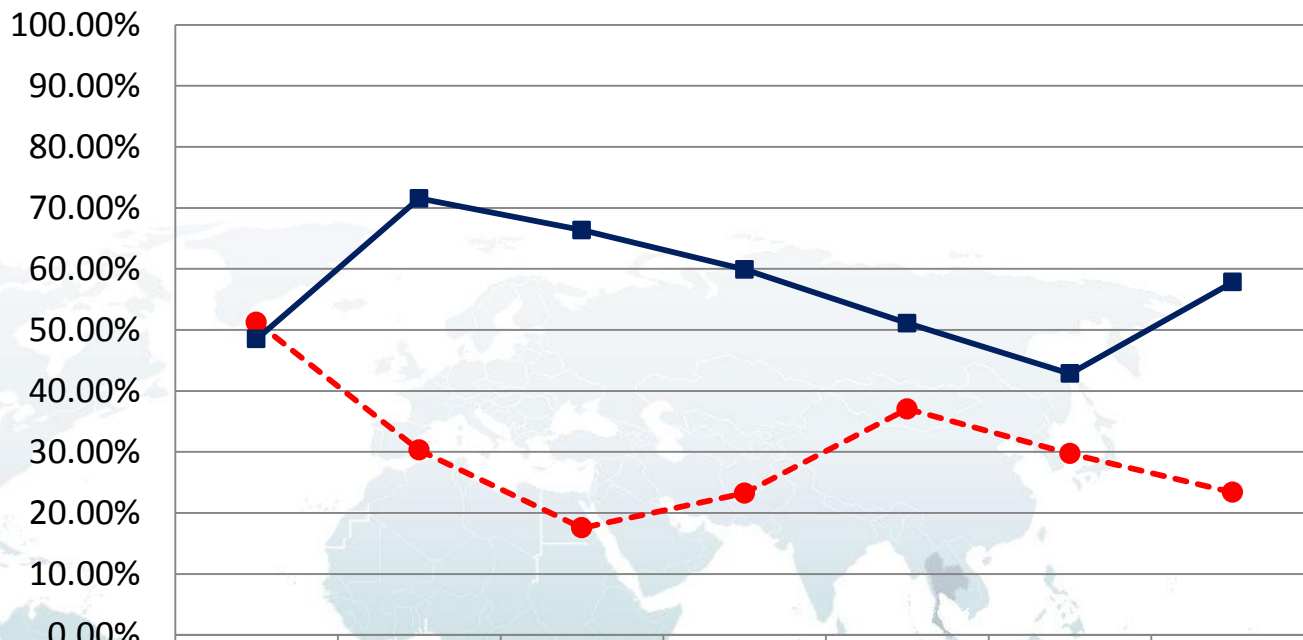


	(Mon) 11 Jun	(Tue) 12 Jun	(Wed) 13 Jun	(Thu) 14 Jun	(Fri) 15 Jun	(Sat) 16 Jun	(Sun) 17 Jun
Worst-case Delay (minutes)	57	53	60	43	87	44	57
Average Delay (minutes)	22	15	11	12	16	14	18
Over 45 minutes	24	4	1	0	2	5	5
31 - 45 minutes	41	20	2	9	12	19	20
16 - 30 minutes	139	99	70	86	140	107	72
Percentage Delayed (Airborne)	51.26%	30.30%	17.55%	23.23%	37.02%	29.72%	23.37%

Departure Delay vs Arrival Delay

Week 1: 11 – 17 June 2012

Percent of Aircraft with Ground Delay and Airborne Delay

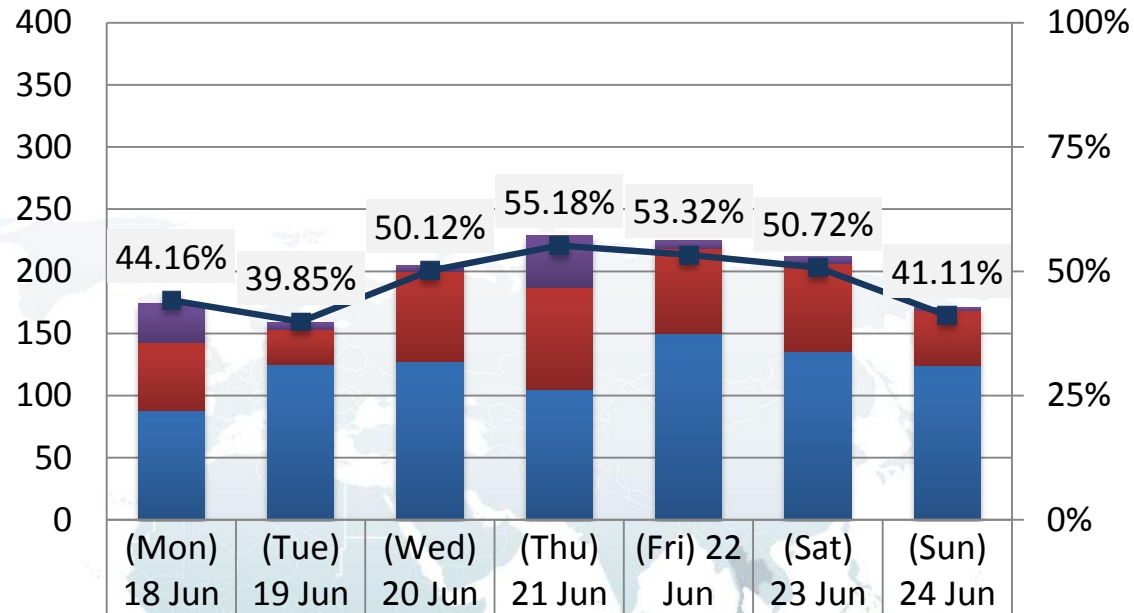


	(Mon) 11 Jun	(Tue) 12 Jun	(Wed) 13 Jun	(Thu) 14 Jun	(Fri) 15 Jun	(Sat) 16 Jun	(Sun) 17 Jun
-●- Percentage Delayed (Airborne)	51.26%	30.30%	17.55%	23.23%	37.02%	29.72%	23.37%
-■- Percentage Delayed (Ground)	48.49%	71.54%	66.34%	59.90%	51.07%	42.82%	57.82%

Ground Delay (Departures)

Week 2: 18 – 24 June 2012

Ground Delay (Departures)

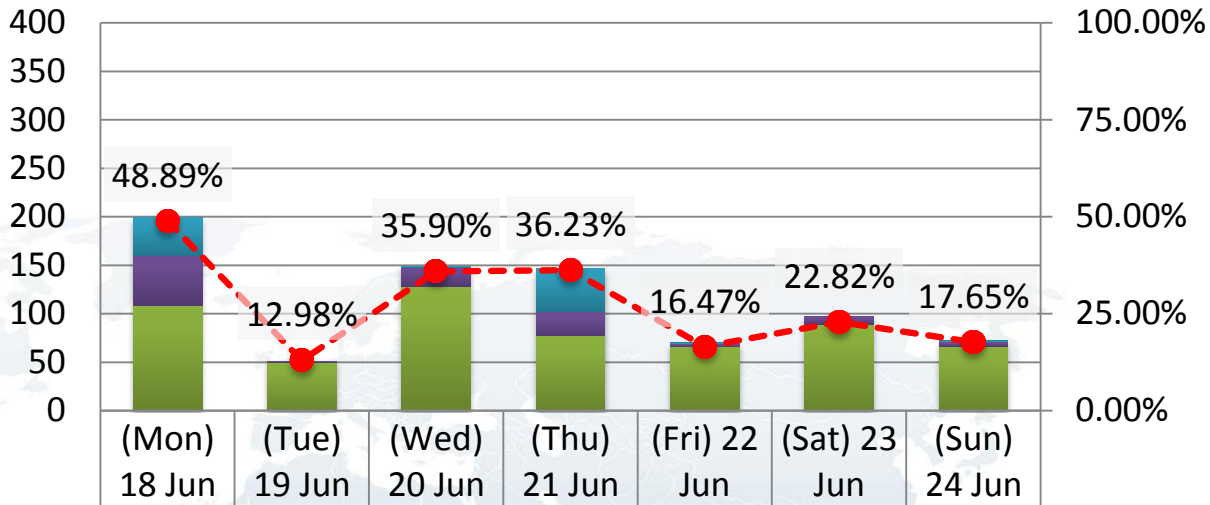






Over 30 minutes	31	6	5	42	7	6	3
16 - 30 minutes	55	28	73	82	68	71	44
1 - 15 minutes	88	125	127	105	150	135	124
Percentage Delayed (Ground)	44.16%	39.85%	50.12%	55.18%	53.32%	50.72%	41.11%

Airborne Delay (Arrivals)

Week 2: 18 – 24 June 2012

Airborne Delay (Arrivals)

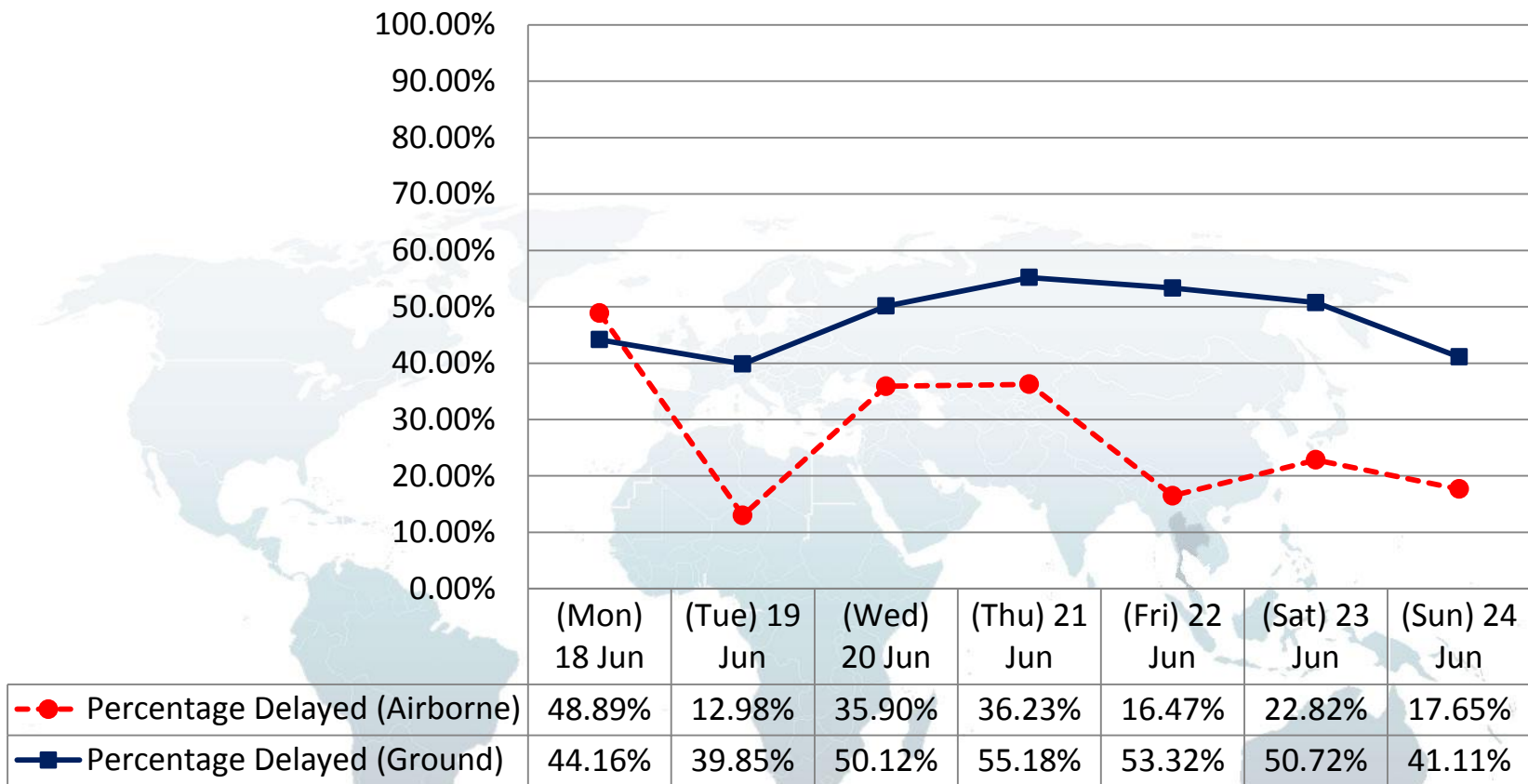


Worst-case Delay (minutes)	65	44	62	76	52	45	51
Average Delay (minutes)	24	10	39	50	11	12	11
 Over 45 minutes	39	0	1	44	1	0	1
 31 - 45 minutes	52	1	20	25	3	8	5
 16 - 30 minutes	108	50	128	77	66	89	66
 Percentage Delayed (Airborne)	48.89%	12.98%	35.90%	36.23%	16.47%	22.82%	17.65%

Departure Delay vs Arrival Delay

Week 2: 18 – 24 June 2012

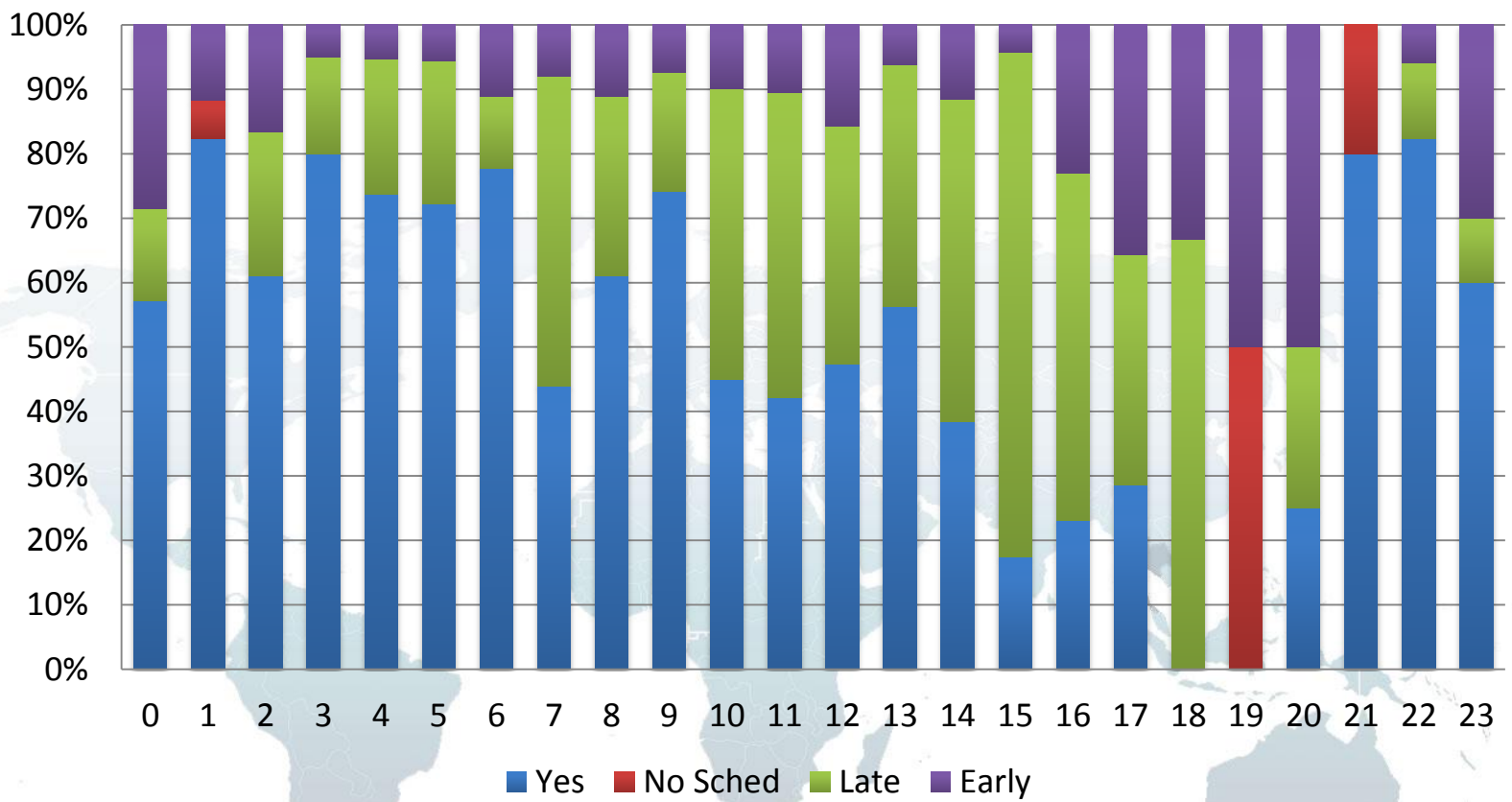
Percent of Aircraft with Ground Delay and Airborne Delay





Arrival Compliance: Monday, 11 Jun 2012

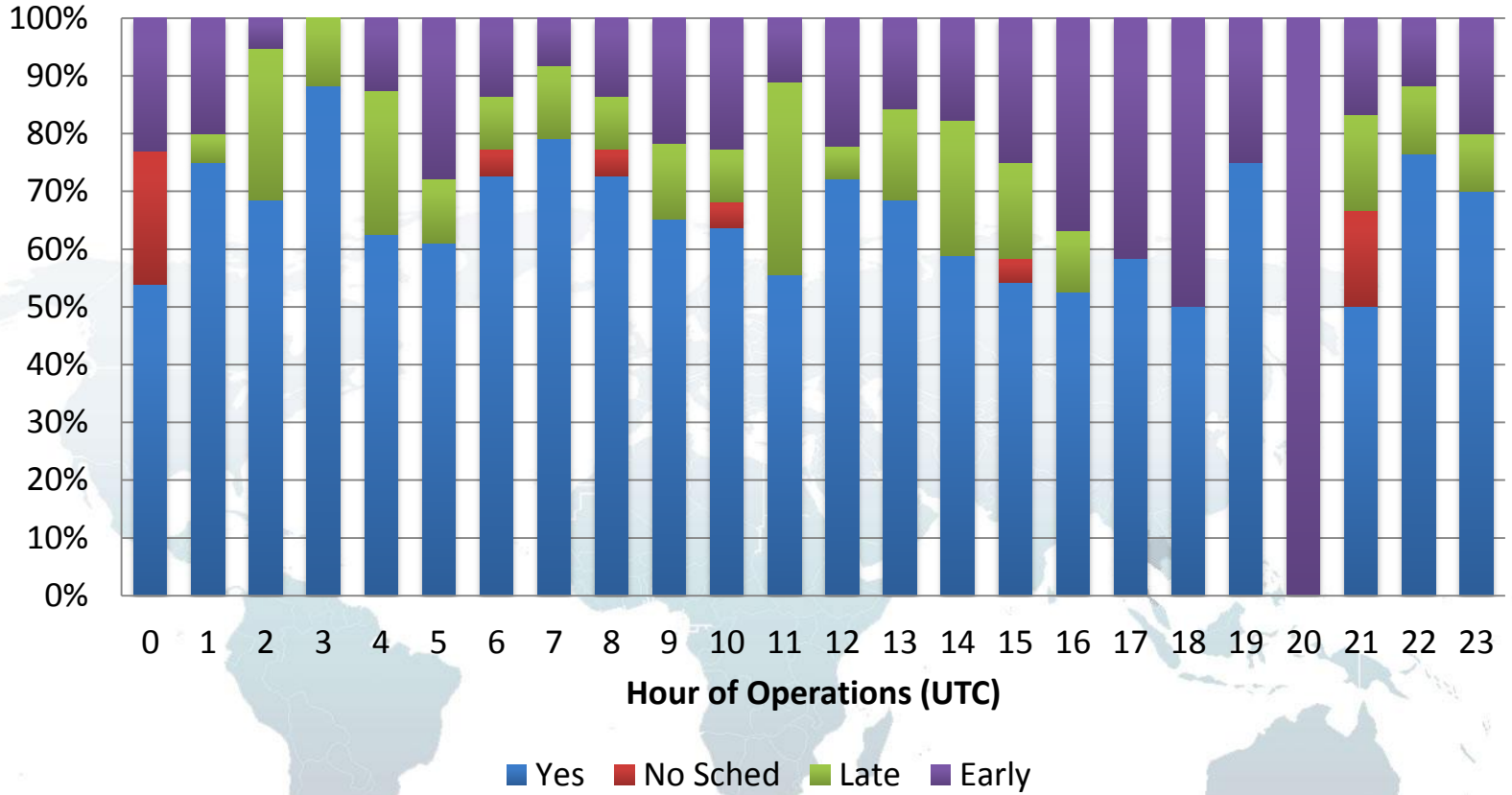
Arrival Compliance





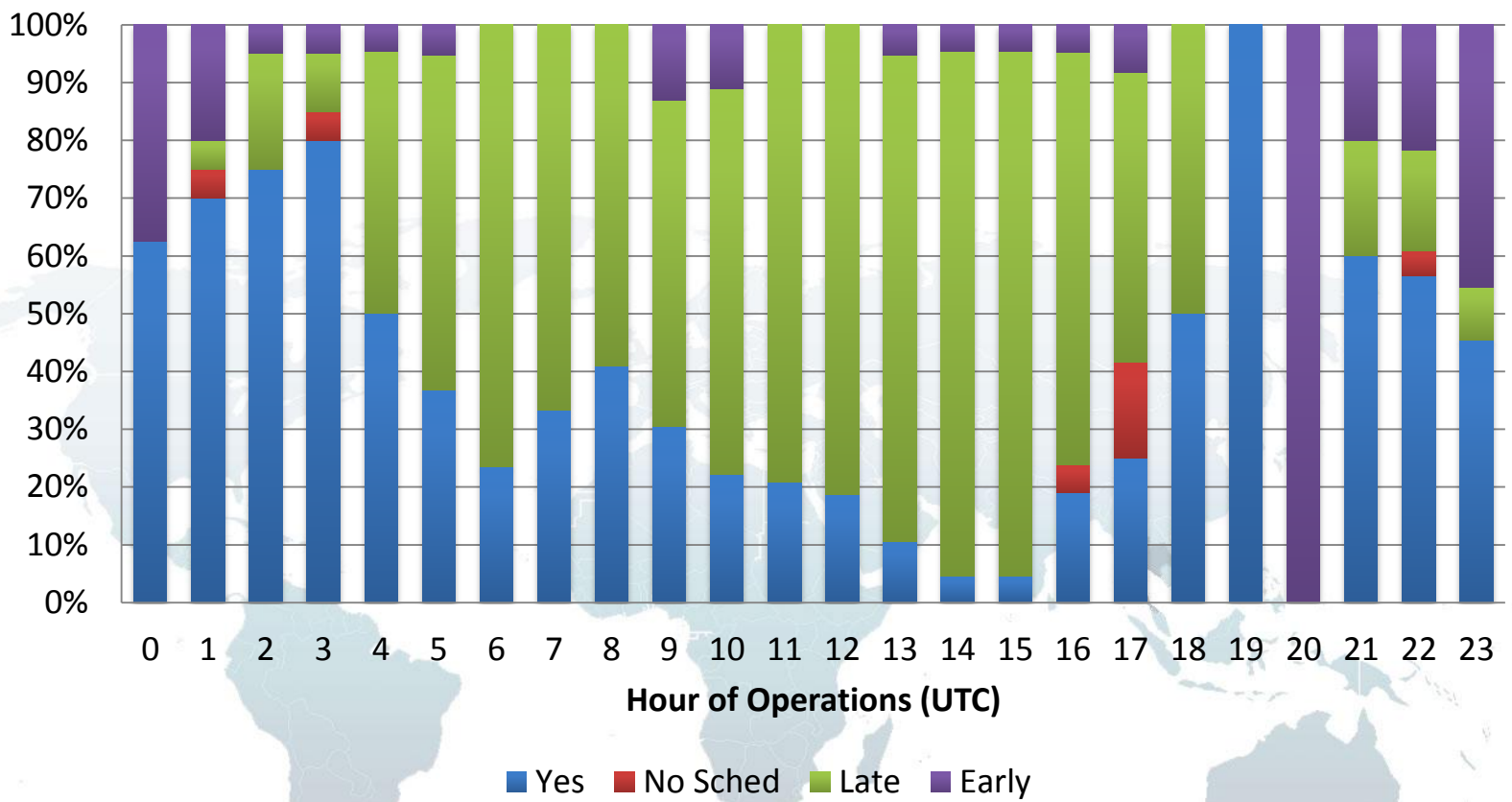
Arrival Compliance: Tuesday, 12 Jun 2012

Arrival Compliance



Arrival Compliance: Wednesday, 13 Jun 2012

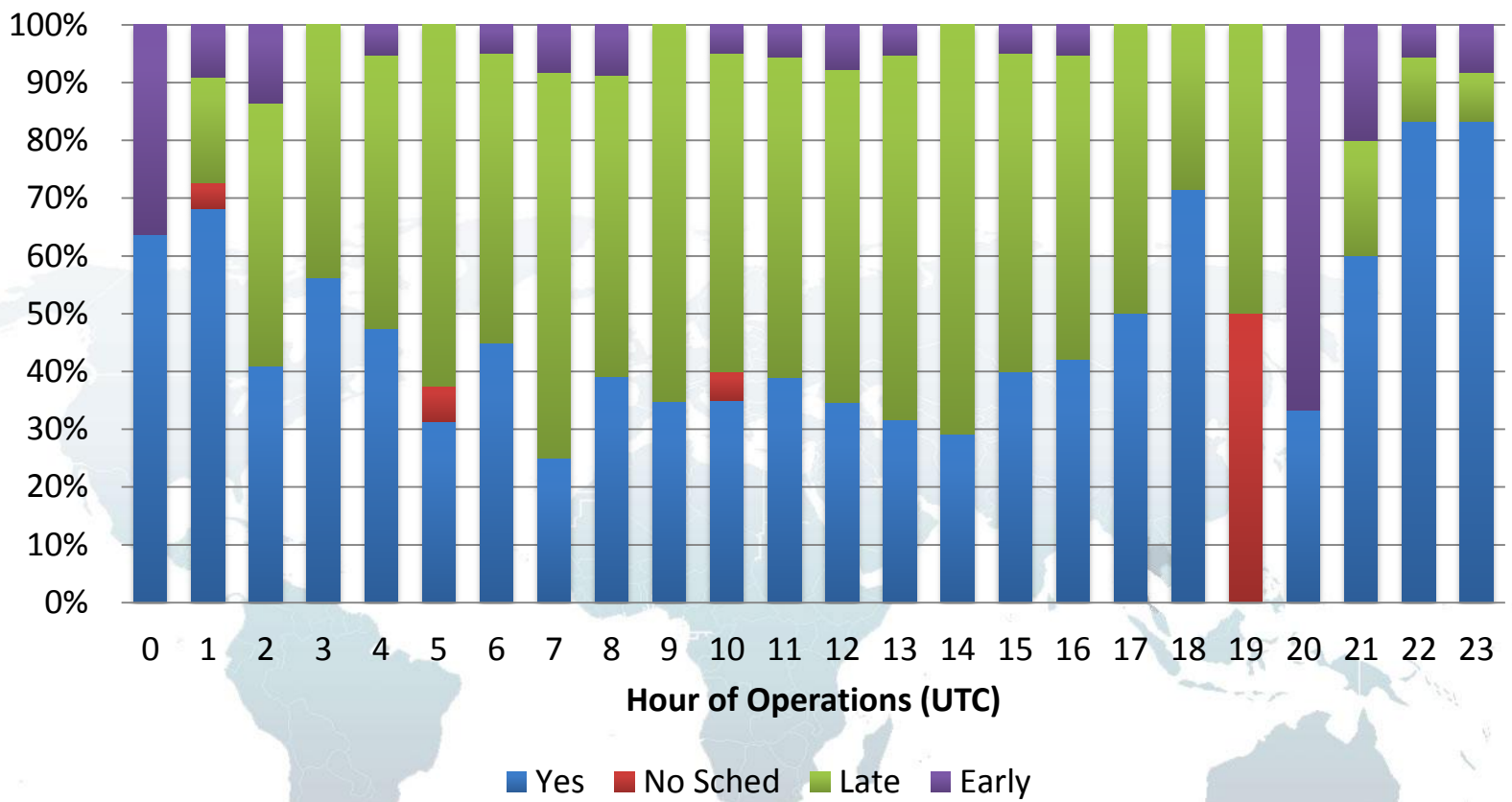
Arrival Compliance





Arrival Compliance: Thursday, 14 Jun 2012

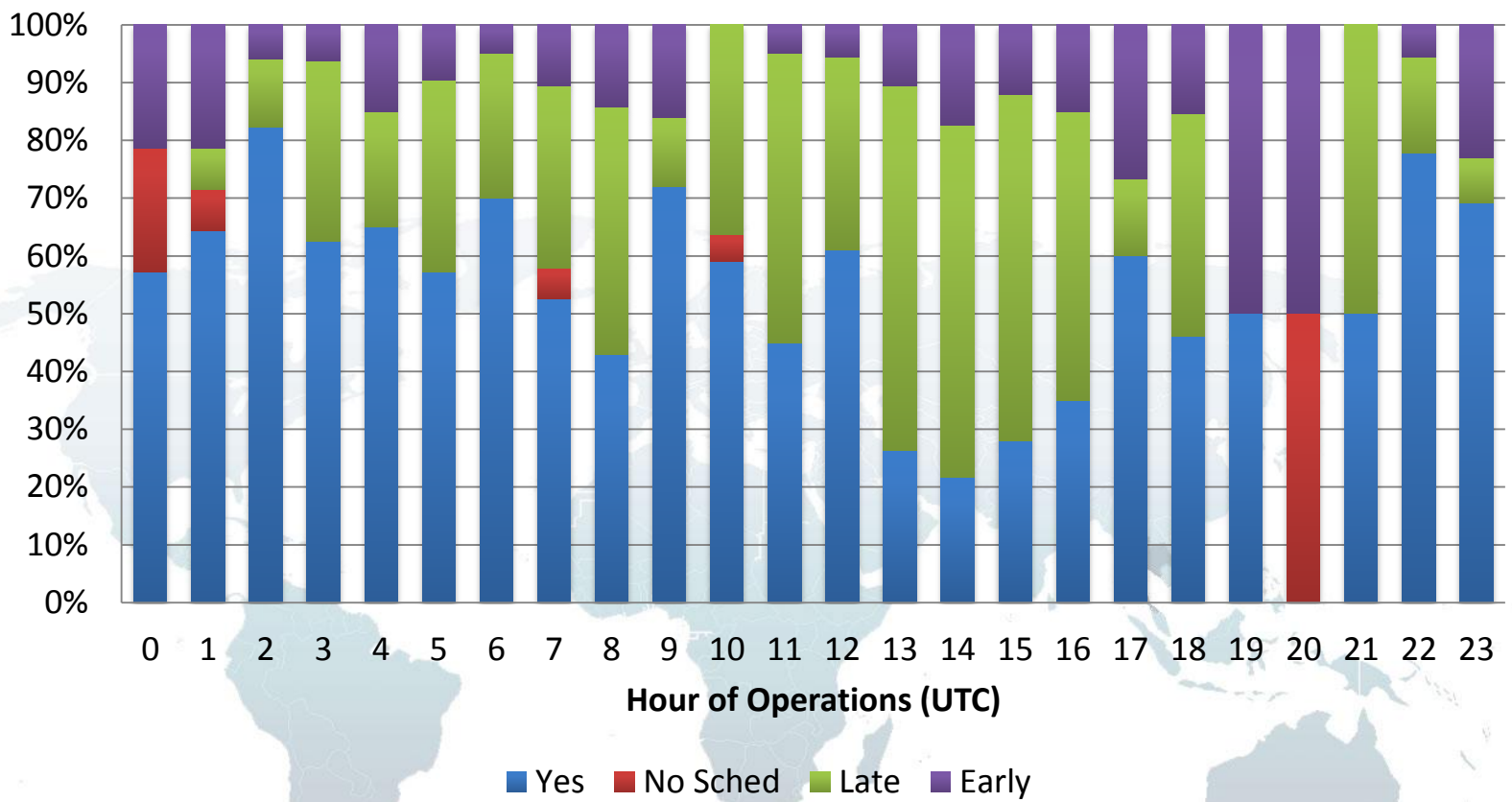
Arrival Compliance





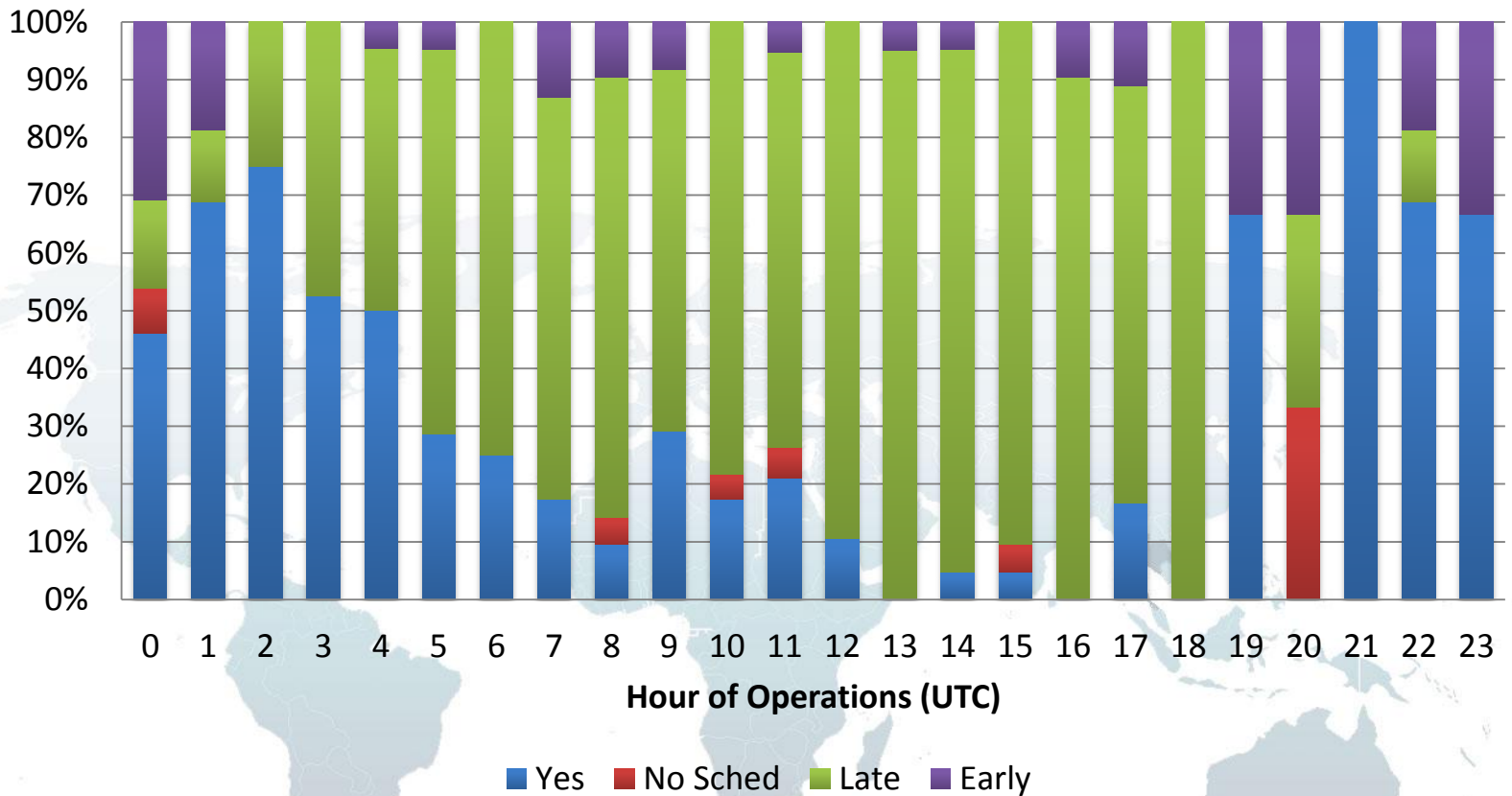
Arrival Compliance: Friday, 15 Jun 2012

Arrival Compliance



Arrival Compliance: Saturday, 16 Jun 2012

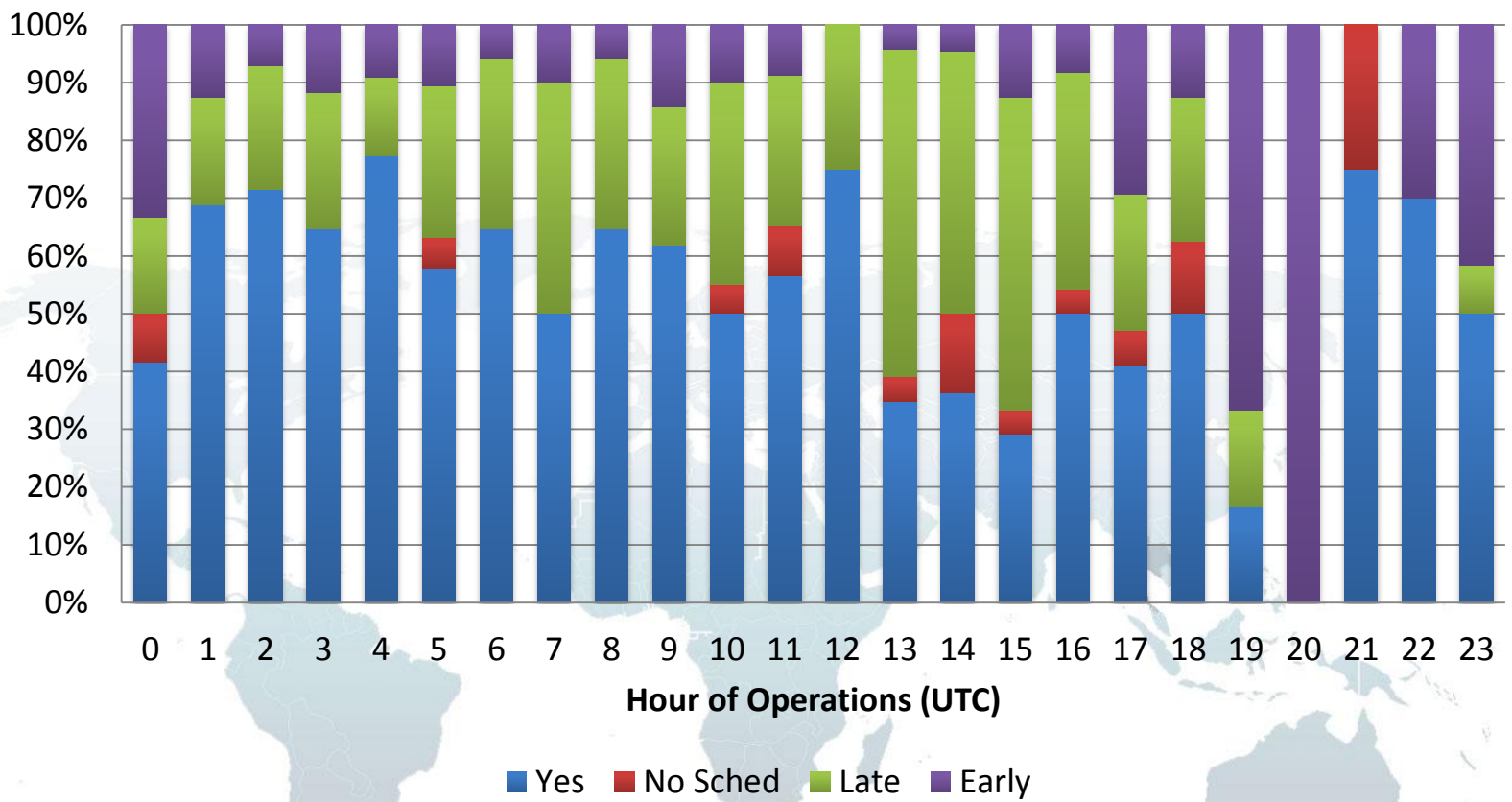
Arrival Compliance





Arrival Compliance: Sunday, 17 Jun 2012

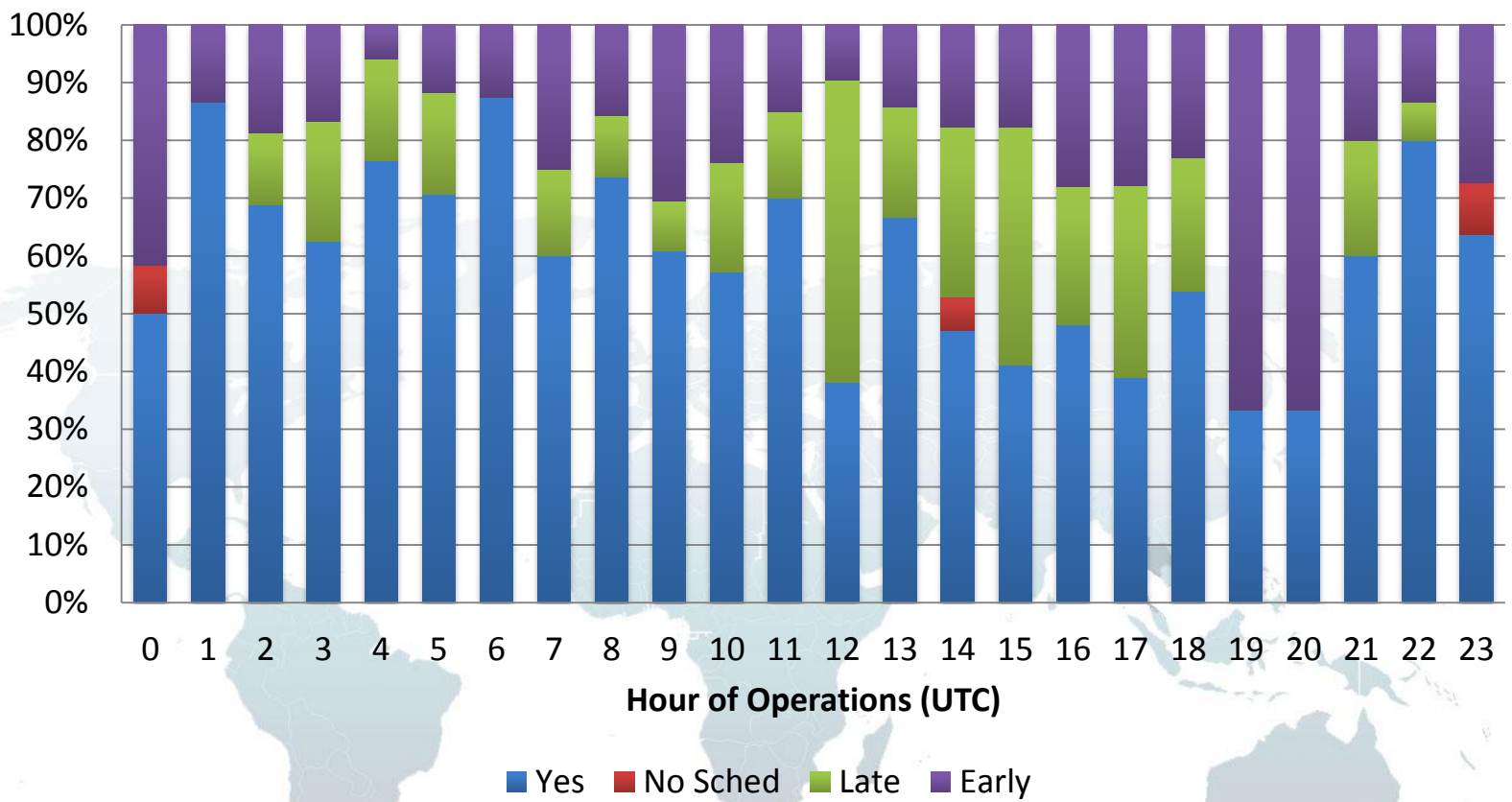
Arrival Compliance





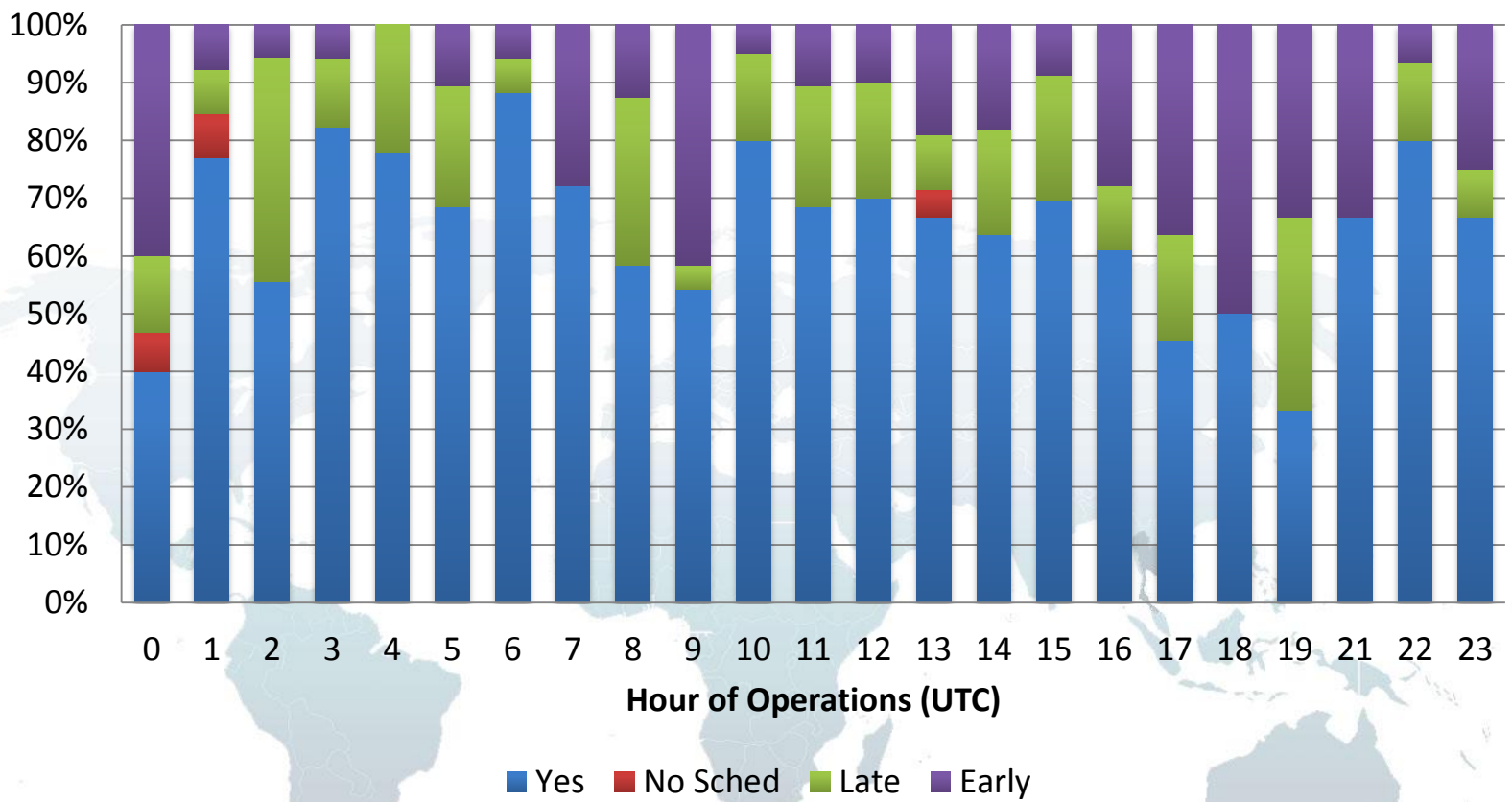
Arrival Compliance: Monday, 18 Jun 2012

Arrival Compliance



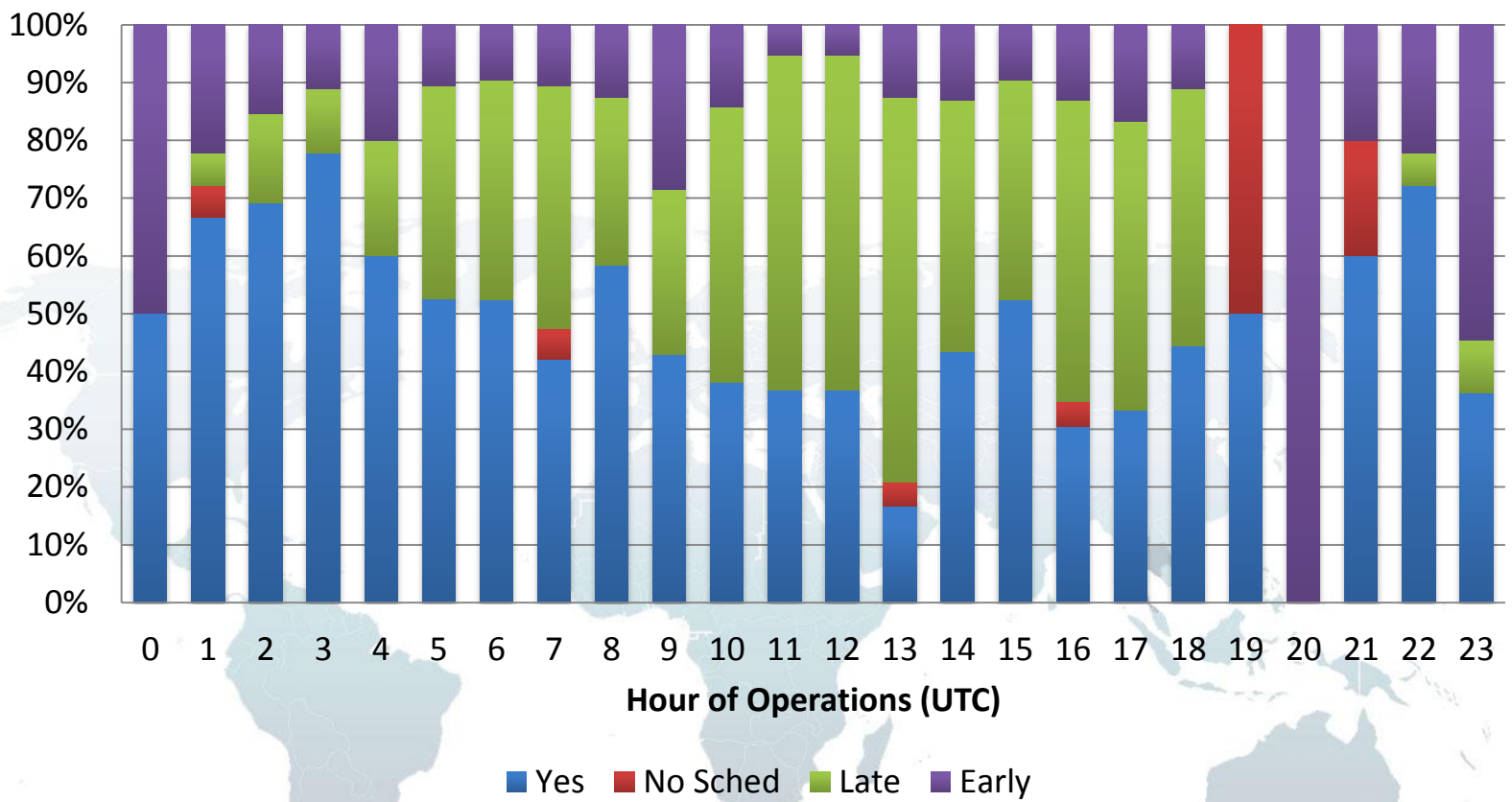
Arrival Compliance: Tuesday, 19 Jun 2012

Arrival Compliance



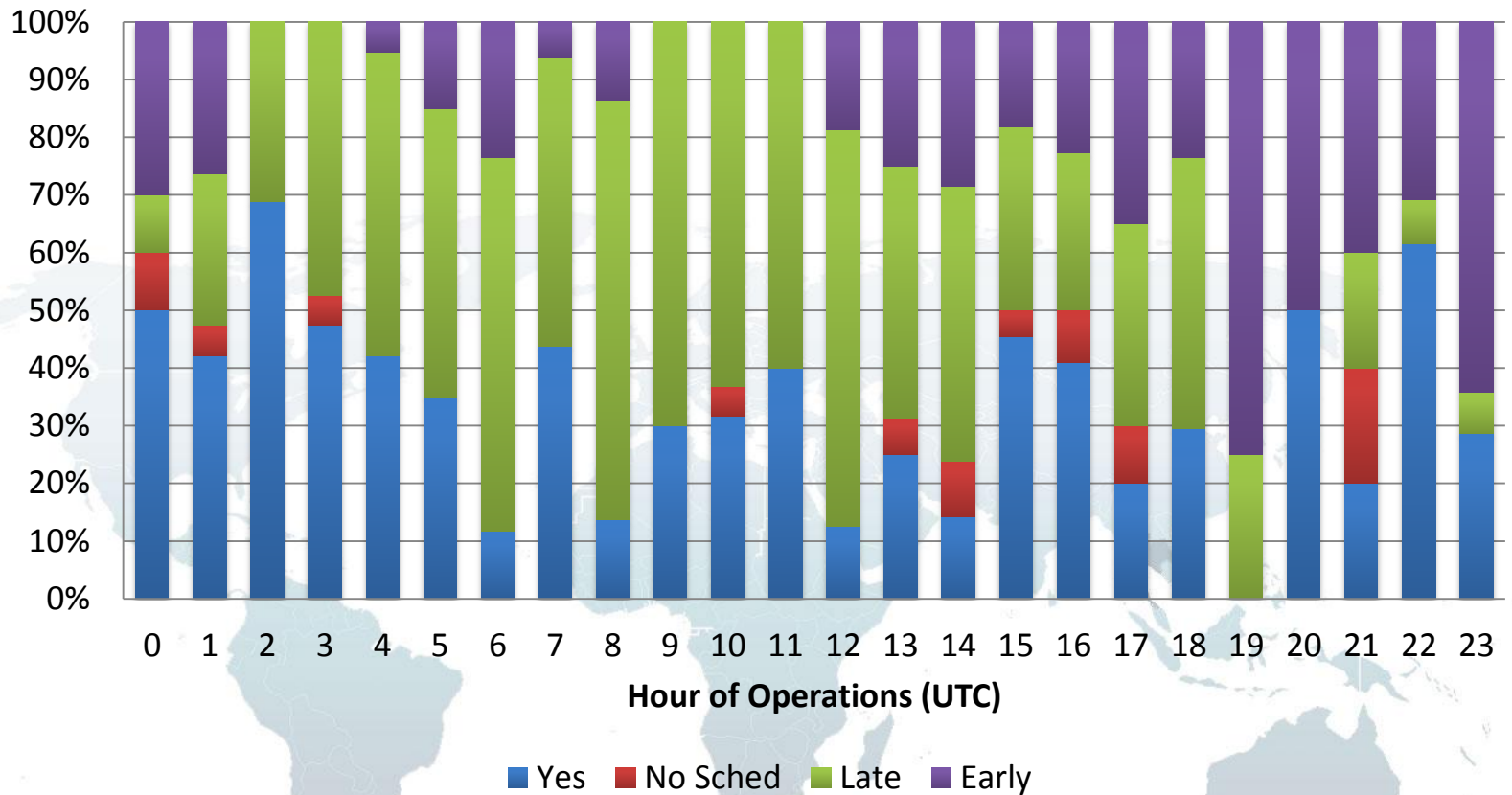
Arrival Compliance: Wednesday, 20 Jun 2012

Arrival Compliance



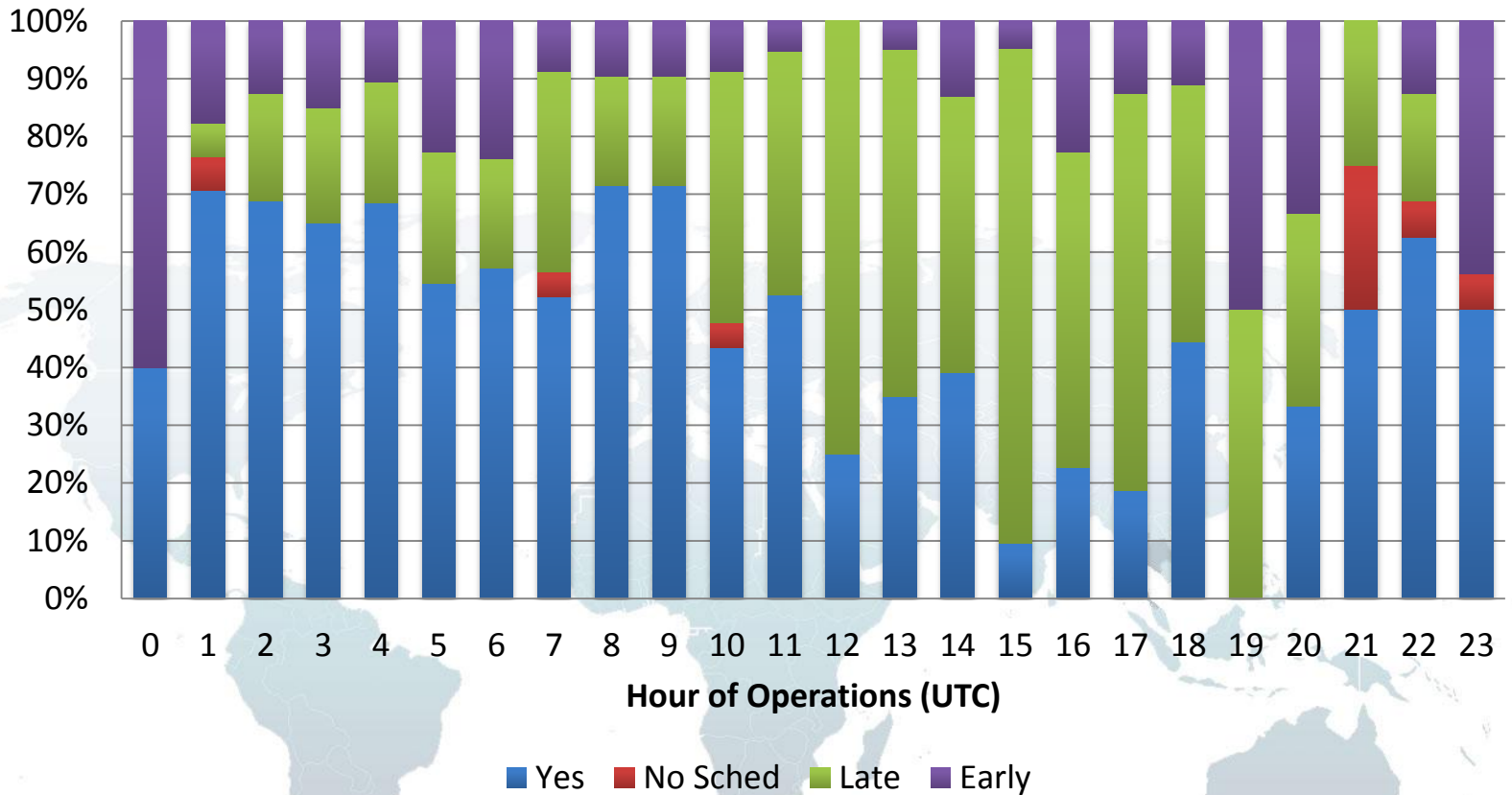
Arrival Compliance: Thursday, 21 Jun 2012

Arrival Compliance



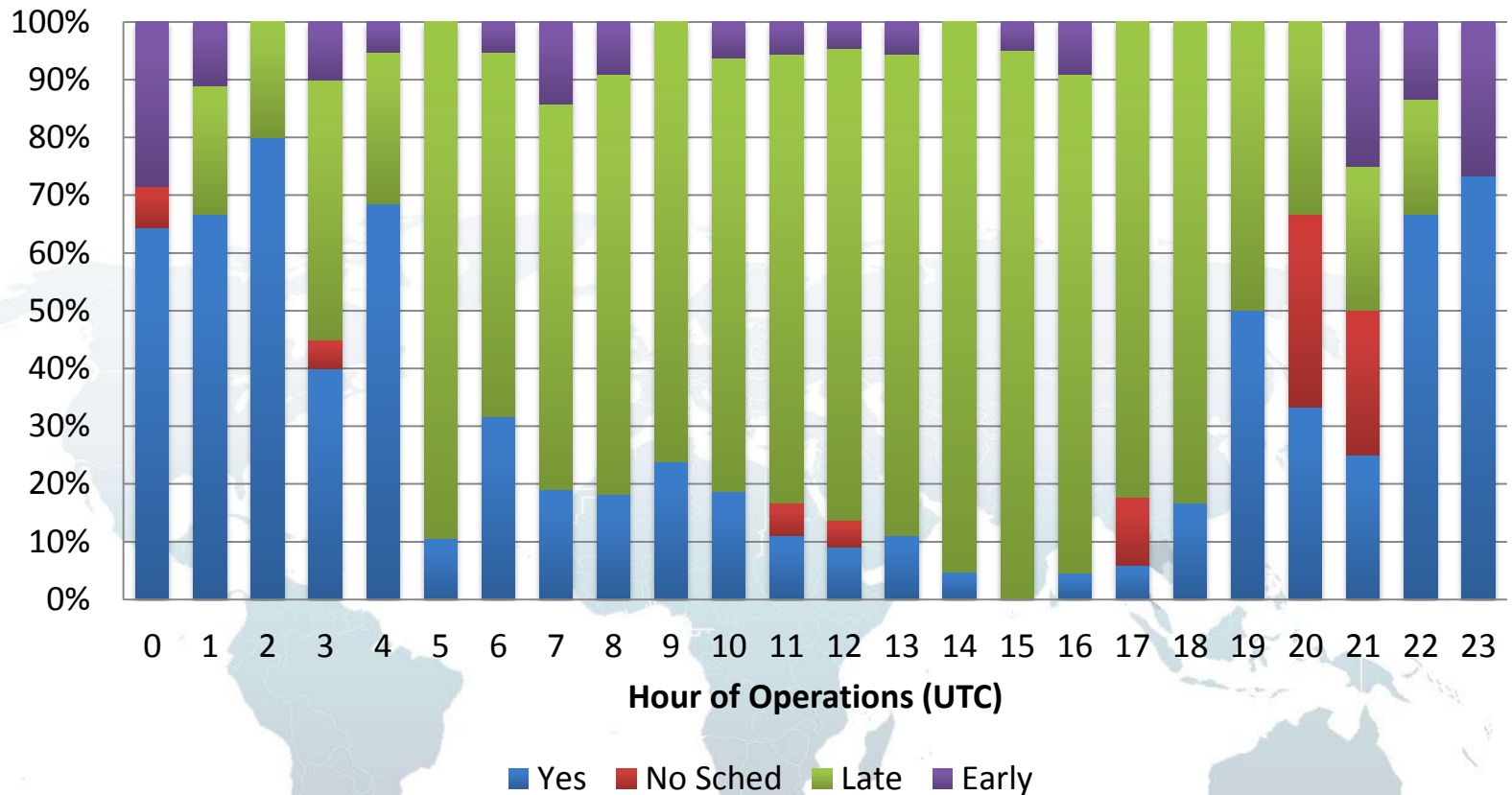
Arrival Compliance: Friday, 22 Jun 2012

Arrival Compliance



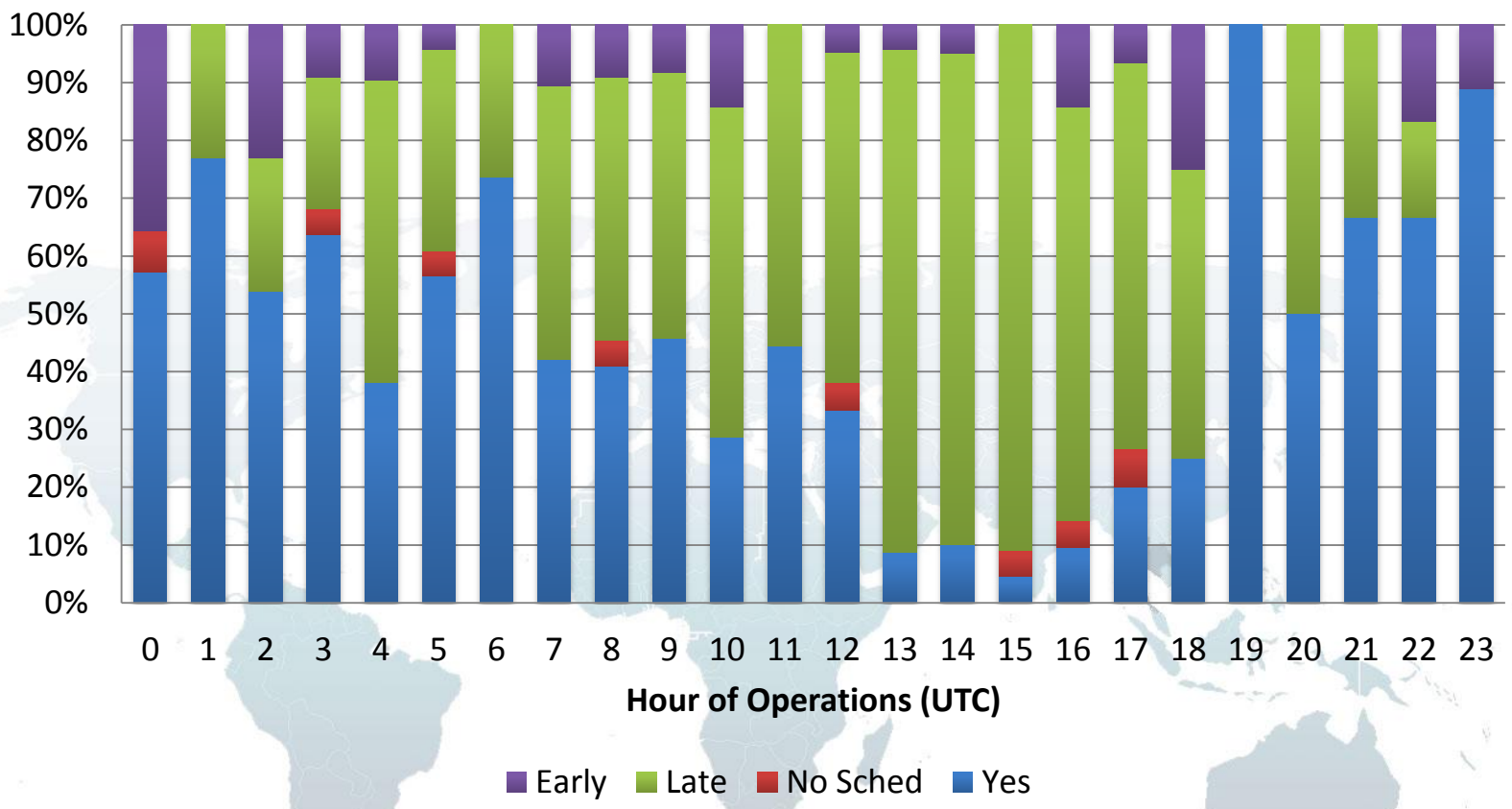
Arrival Compliance: Saturday, 23 Jun 2012

Arrival Compliance



Arrival Compliance: Sunday, 24 Jun 2012

Arrival Compliance





Significant Events

Week 1: 11 – 17 June 2012

- **Sunday, 17 June 2012**
 - 15.00 – 18.00hr: convective weather
 - 21.00 – 24.00hr convective weather
 - Convective weather reduced visibility resulting in further ground and airborne delays

Significant Events

Week 2: 18 – 24 June 2012

■ Monday, 18 June 2012

- Unscheduled emergency taxiway maintenance affecting delays at Suvarnabhumi Airport

■ Thursday, 21 June 2012

- Electrical Power Malfunction at Suvarnabhumi Airport
- Event under full investigation administered by Deputy Minister of Transport
- Diversions: 13 Suvarnabhumi-bound; 2 Don Mueang-bound
- Airborne Delay: 15 affected
- Ground Delay: 22 affected from domestic airports



Overall Summary

- **One diversion in the first week**
 - Decision made by the pilot tactically
 - Information provided in advance to adjust operations
- **Cooperation in accordance to published Departure / Arrival Time Window would help reduce workload and disruption for all involved**
- **Airborne delay lower than ground delay**
 - Ground delay managed at aircraft stand with engines off in accordance to “Gate Hold Procedure”
 - Arrivals given priority to alleviate airborne delay, reducing need for diversions



Overall Summary

- More collaborative exchange of information among airport operators, aircraft operators and ANSPs could assist in minimizing operational impact of the maintenance
- Single-Runway Capacity of 34 movements/hour in line with operational results
- Delay advisory provided in line with operational results
 - <<https://www.bobcat.aero/vtbsrwymaintenance>>
 - Feedback from the airlines indicated that delays forecasted were in line with operational results



Questions & Answers