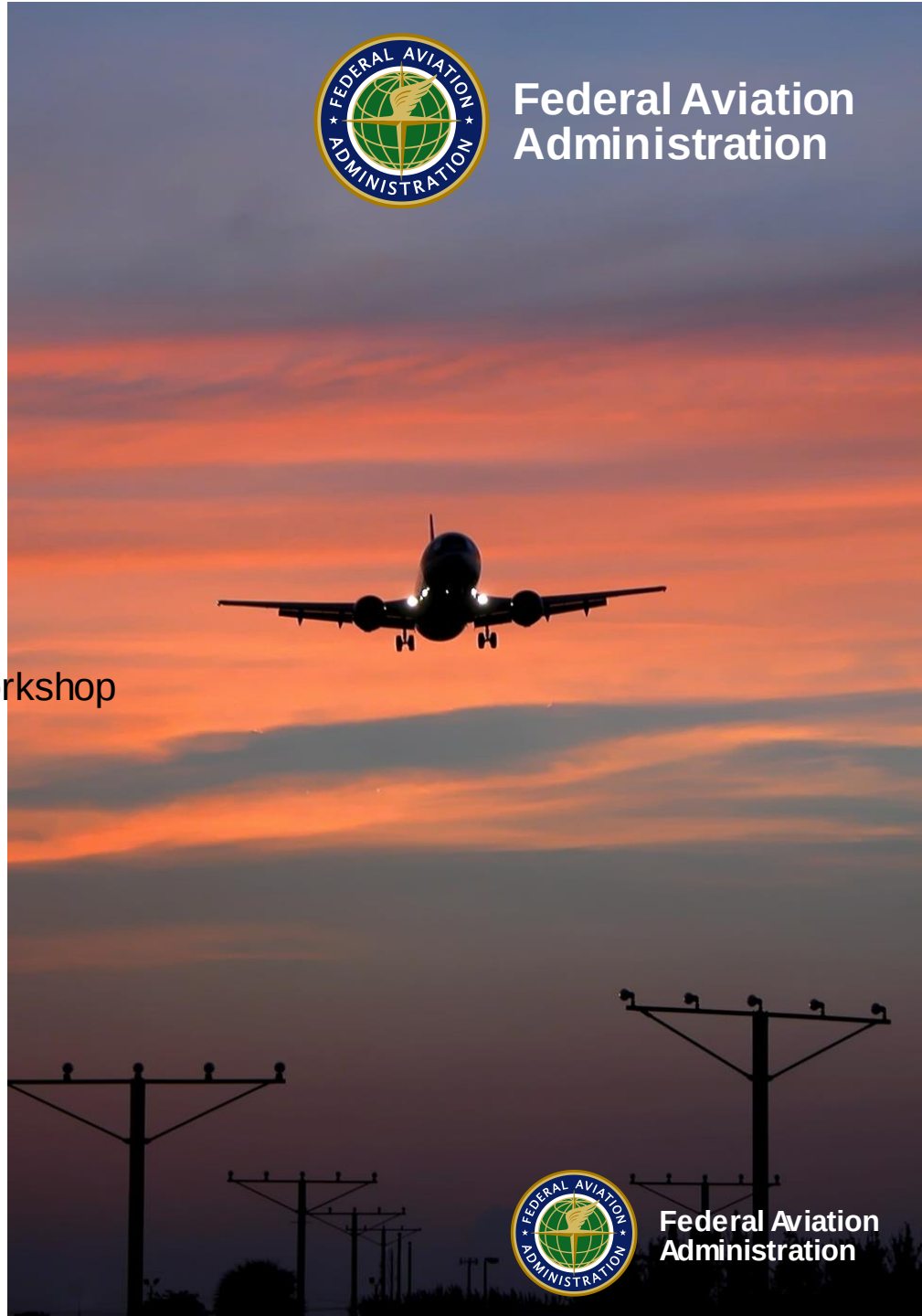
Automation and the Dispatcher

The key to operational control

Presented to: NASA Airline Operations Workshop

By: Jim Jansen

Date: August 2, 2016



In the beginning

This presentation is in 3 parts

- **1. What the dispatcher does**
- **2. How they do it.**
- **3. What could possibly go wrong?**

Part 1

What the dispatcher does.

Primary purpose

- **SAFETY**
- **By providing shared operational control**

Secondary

The focal point for the economics of day-to-day airline operations

What is operational control?

- **With respect to a flight, it is defined in regulation as:**
- **The exercise of authority over initiating, conducting, or terminating a flight.**

Responsibility for operational control

- **Regulations specify the entity responsible for operational control in Part 121 operations is the Certificate Holder.**

Responsibility for operational control

- **In Part 121 Domestic and Flag operations, the pilot in command and the aircraft dispatcher are jointly responsible for the:**
- Preflight planning,
- Delay, and
- Dispatch release

Responsibility for operational control

- **The aircraft dispatcher is responsible for:**
- Monitoring the progress of each flight,
- Issuing necessary information for the safety of the flight, and
- Cancelling or redispatching the flight if, in his opinion or the opinion of the pilot in command, the flight cannot operate or continue to operate safely as planned or released. (14 CFR 121.533)

Preflight planning

- **Where does the dispatcher get information for preflight planning ?**

Preflight planning

Preflight planning (cont.)

- **1. The aircraft:**
  - a) Is it airworthy?
  - b) Are there any MEL/CDLs effecting performance?
  - c) Is it the correct configuration for the operation?
- 2. **Payload**
  - a) passenger load
  - b) bags
  - c) cargo – includes restricted articles if applicable

Preflight planning (cont.)

- **3. Weather/NOTAMS**
  - **a) departure weather/NOTAMS**
  - **b) enroute weather/NOTAMS:**
    winds, turbulence, convective activity
  - **c) destination weather/NOTAMS**
  - **d) alternate weather?NOTAMS:**
    (includes enroute alternates)

Preflight planning (cont.)

- **4. Fuel planning**
  a) Domestic fuel requirements
  b) International fuel requiremnets
  c) ETOPS fuel requirements
  d) Economic fuel (tankering)

Preflight planning (cont.)

- **5. ATC**
  - a) departure delays/coded departure routes
  - b) SWAP routes
  - c) Military Operations Areas (MOAs)
  - d) Ground Delay Initiatives
  - e) TFRs

Preflight planning (cont.)

- **6. Crew**
  - a) Captain restricted (less than 100 hours PIC)?
  - b) fit for duty?
  - c) qualified for route to be flown

Prefight planning (cont.)

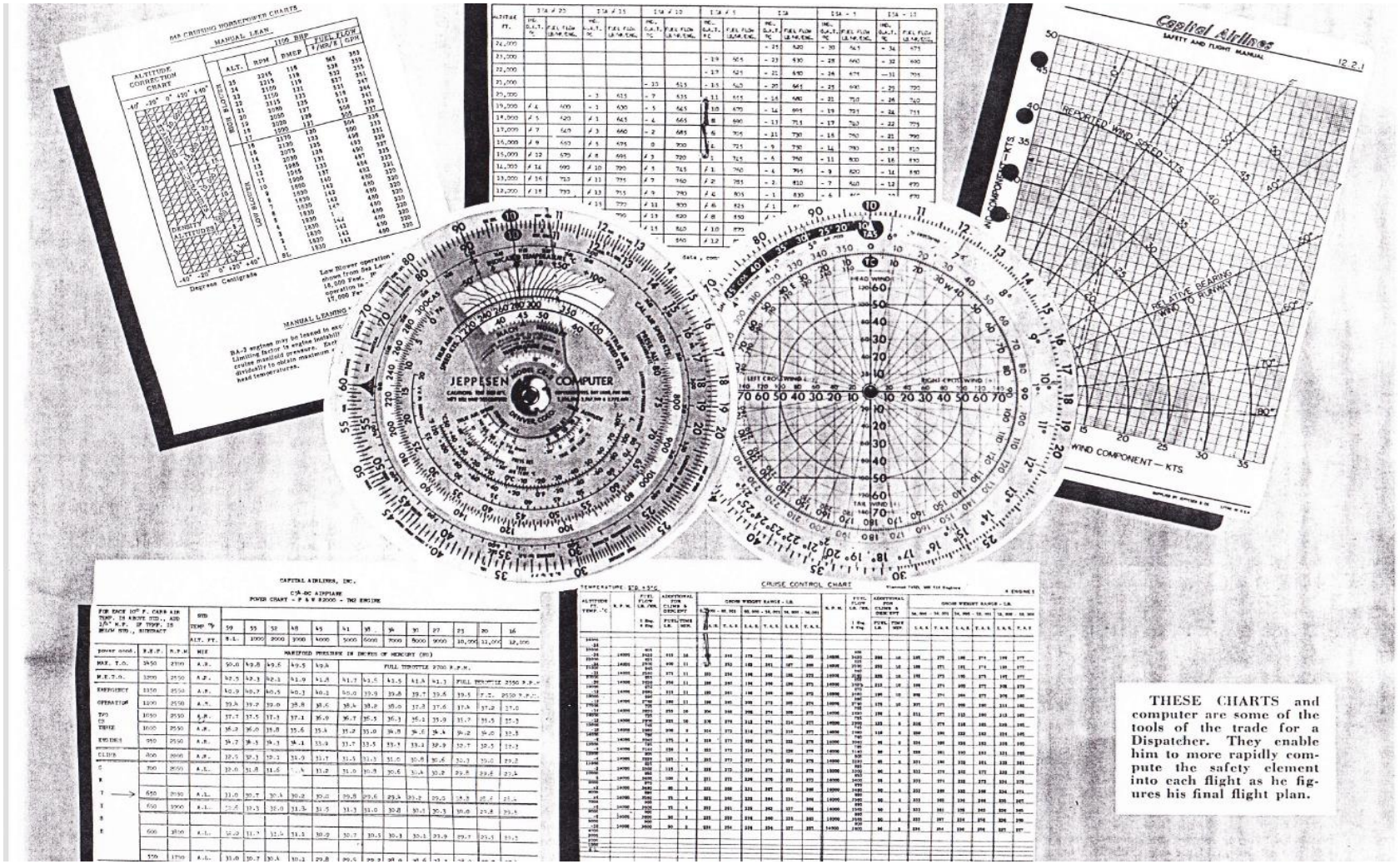
- **7. Security bulletins**
  a) government issued
  b) company issued

Part 2

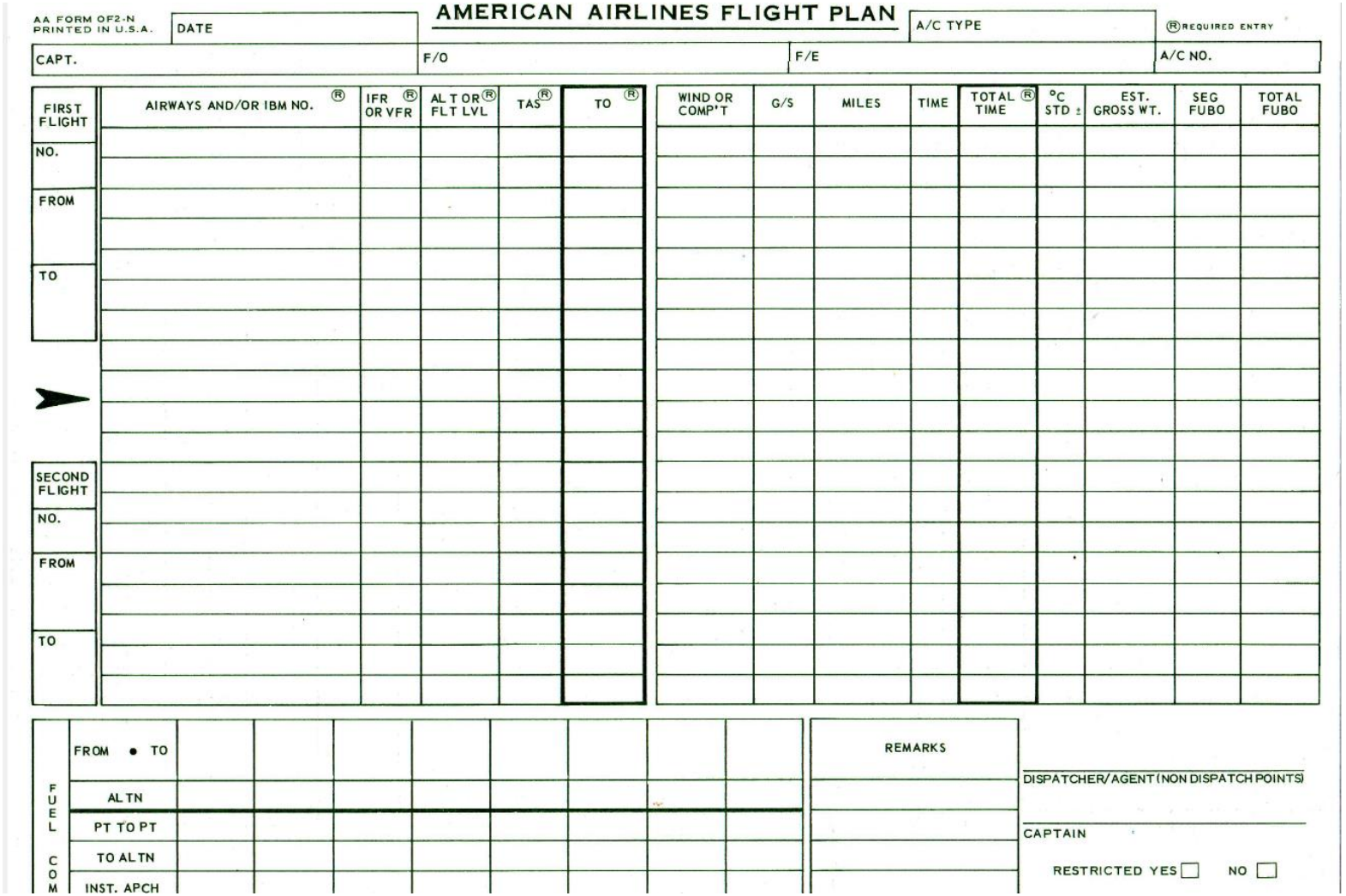
How they do it

A TRIP IN THE WAYBACK MACHINE

1960s


JEPPESEN COMPUTER
Capital Airlines
SAFETY AND FLIGHT MANUAL
REPORTED WIND SPEED—KTS
WIND COMPONENT—KTS
THESE CHARTS and computer are some of the tools of the trade for a Dispatcher. They enable him to more rapidly compute the safety element into each flight as he figures his final flight plan.

1975



AA FORM OF2-N PRINTED IN U.S.A.

AMERICAN AIRLINES FLIGHT PLAN

DATE | A/C TYPE | ®REQUIRED ENTRY

CAPT. | F/O | F/E | A/C NO.

FIRST FLIGHT	AIRWAYS AND/OR IBM NO. ®	IFR ® OR VFR	ALT OR® FLT LVL	TAS®	TO ®	WIND OR COMP'T	G/S	MILES	TIME	TOTAL TIME ®	°C STD ±	EST. GROSS WT.	SEG FUBO	TOTAL FUBO
NO.														
FROM														
TO														
SECOND FLIGHT														
NO.														
FROM														
TO														

FUEL COM	FROM • TO									
	ALTN									
	PT TO PT									
	TO ALTN									
	INST. APCH									

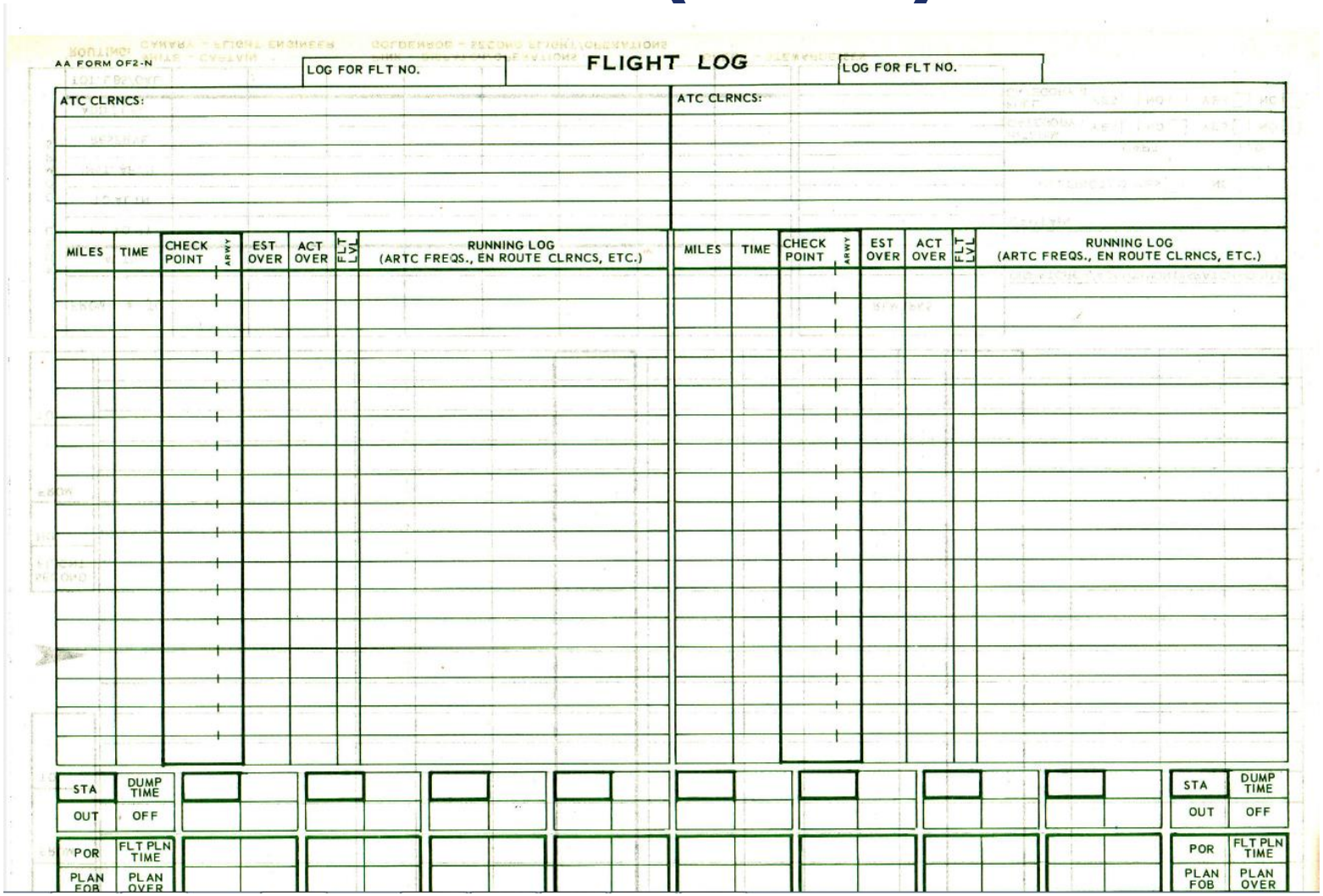
REMARKS

DISPATCHER/AGENT (NON DISPATCH POINTS)

CAPTAIN

RESTRICTED YES ☐ NO ☐

1975 (cont.)



AA FORM OF2-N

LOG FOR FLT NO.

FLIGHT LOG

LOG FOR FLT NO.

ATC CLRNCS:

ATC CLRNCS:

MILES	TIME	CHECK POINT	ARWY	EST OVER	ACT OVER	FLT LVL	RUNNING LOG (ARTC FREQS., EN ROUTE CLRNCS, ETC.)

MILES	TIME	CHECK POINT	ARWY	EST OVER	ACT OVER	FLT LVL	RUNNING LOG (ARTC FREQS., EN ROUTE CLRNCS, ETC.)

STA	DUMP TIME
OUT	OFF
POR	FLT PLN TIME
PLAN FOB	PLAN OVER

STA	DUMP TIME
OUT	OFF
POR	FLT PLN TIME
PLAN FOB	PLAN OVER

1981

1981 (cont.)

1981 (cont.)

1981 (cont.)

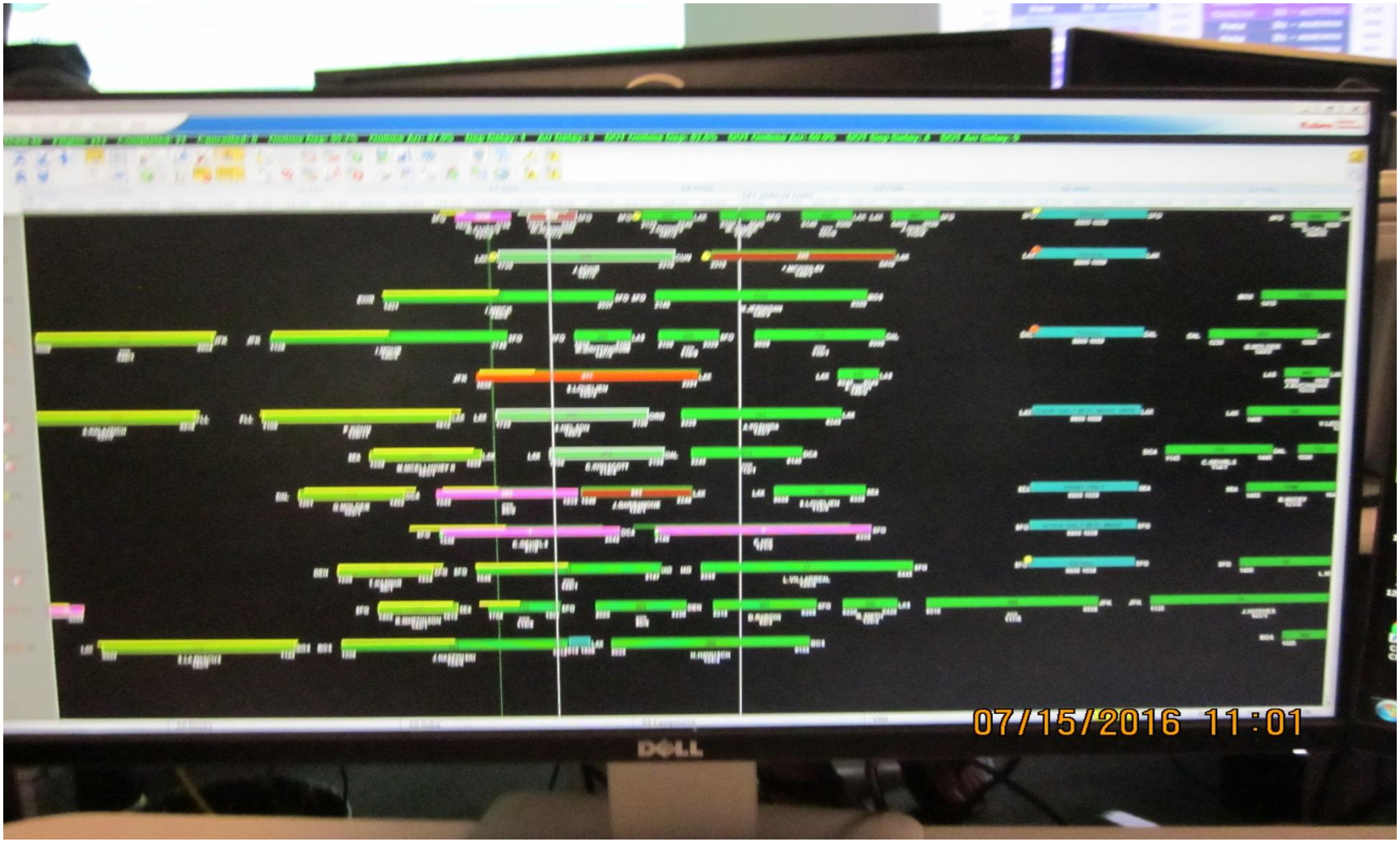
1990

1990

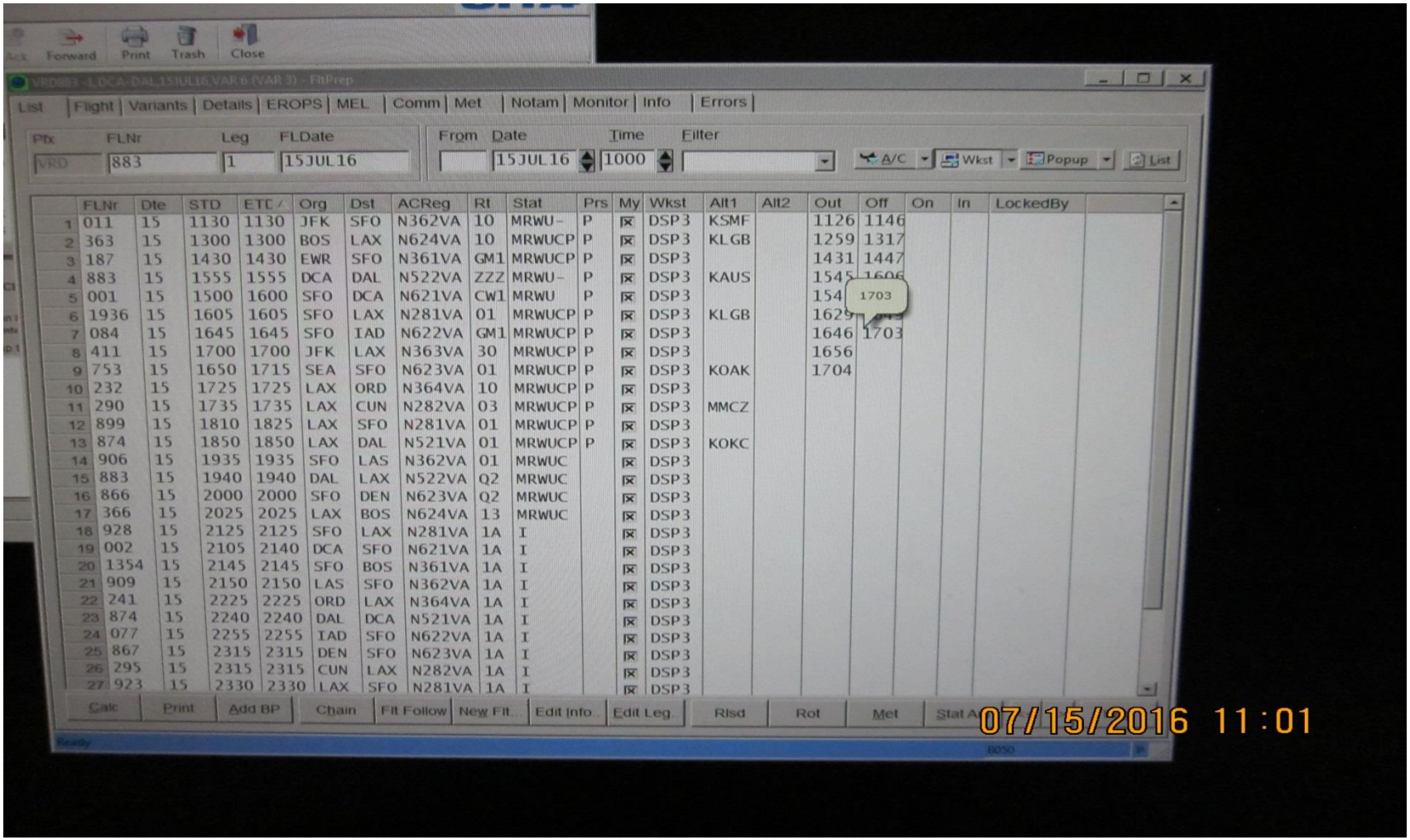
The internet age

2016

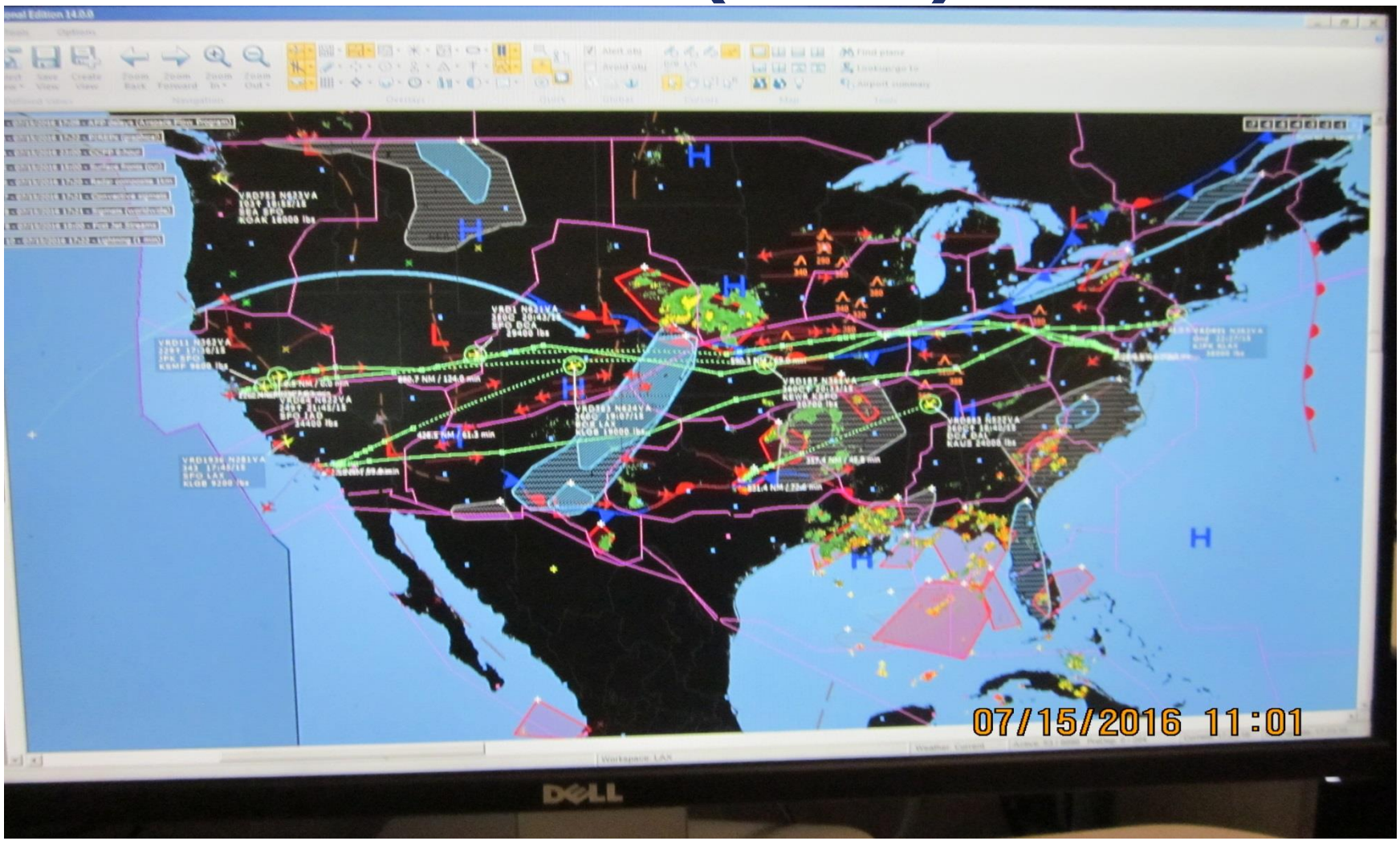
2016 (cont.)



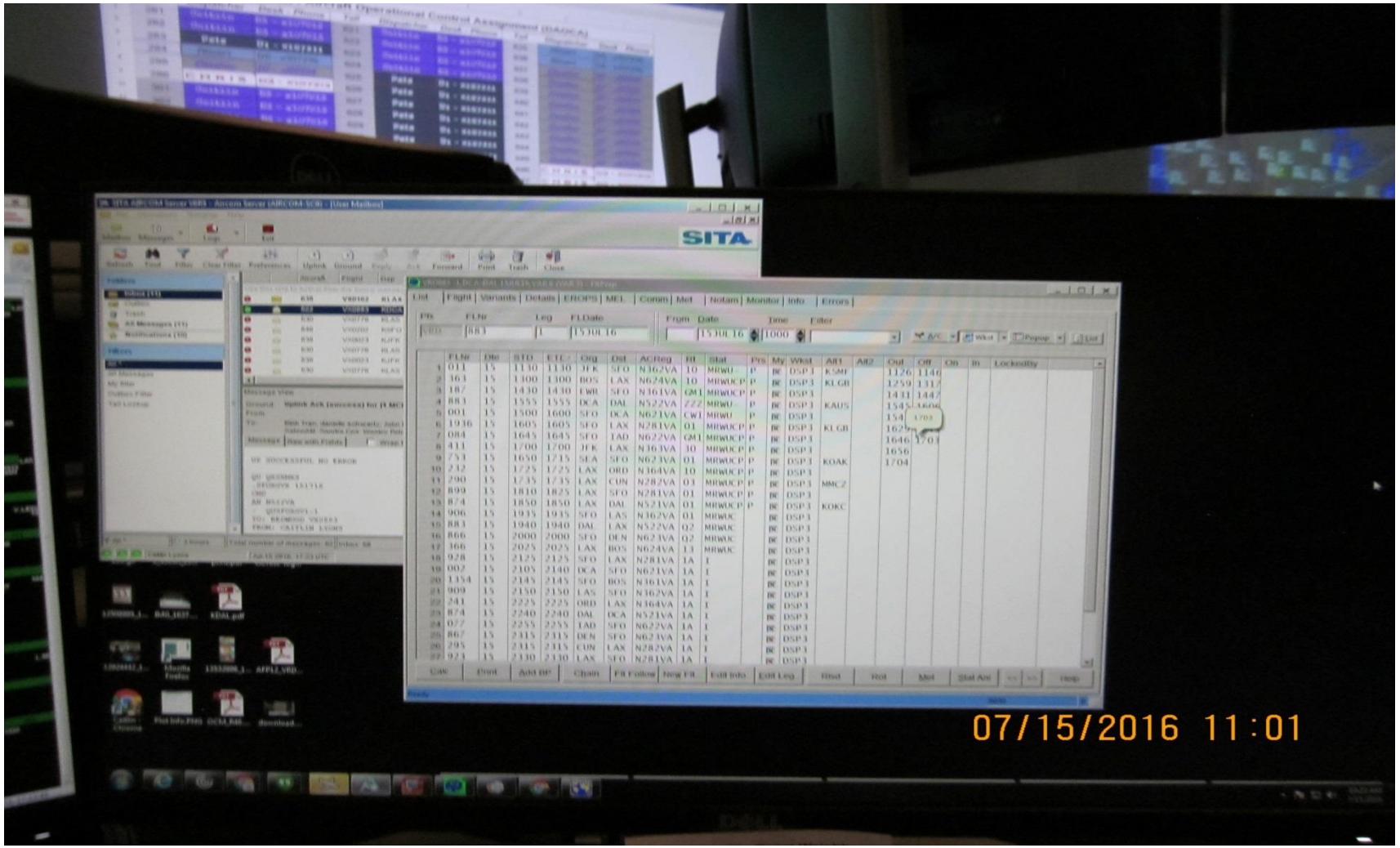
2016 (cont.)


Forward
Print
Trash
Close
List
Flight
Variants
Details
EROPS
MEL
Comm
Met
Notam
Monitor
Info
Errors
Ptx
FLNr
Leg
FLDate
From Date
Time
Filter
VRD
883
1
15JUL16
15JUL16
1000
A/C
Wkst
Popup
List
FLNr Dte STD ETD Org Dst ACReg Rt Stat Prs My Wkst Alt1 Alt2 Out Off On In LockedBy
1 011 15 1130 1130 JFK SFO N362VA 10 MRWU- P DSP3 KSMF 1126 1146
2 363 15 1300 1300 BOS LAX N624VA 10 MRWUCP P DSP3 KLGB 1259 1317
3 187 15 1430 1430 EWR SFO N361VA GM1 MRWUCP P DSP3 1431 1447
4 883 15 1555 1555 DCA DAL N522VA ZZZ MRWU- P DSP3 KAUS 1545 1606
5 001 15 1500 1600 SFO DCA N621VA CW1 MRWU P DSP3 154
6 1936 15 1605 1605 SFO LAX N281VA 01 MRWUCP P DSP3 KLGB 1629
7 084 15 1645 1645 SFO IAD N622VA GM1 MRWUCP P DSP3 1646 1703
8 411 15 1700 1700 JFK LAX N363VA 30 MRWUCP P DSP3 1656
9 753 15 1650 1715 SEA SFO N623VA 01 MRWUCP P DSP3 KOAK 1704
10 232 15 1725 1725 LAX ORD N364VA 10 MRWUCP P DSP3
11 290 15 1735 1735 LAX CUN N282VA 03 MRWUCP P DSP3 MMCZ
12 899 15 1810 1825 LAX SFO N281VA 01 MRWUCP P DSP3
13 874 15 1850 1850 LAX DAL N521VA 01 MRWUCP P DSP3 KOKC
14 906 15 1935 1935 SFO LAS N362VA 01 MRWUC DSP3
15 883 15 1940 1940 DAL LAX N522VA Q2 MRWUC DSP3
16 866 15 2000 2000 SFO DEN N623VA Q2 MRWUC DSP3
17 366 15 2025 2025 LAX BOS N624VA 13 MRWUC DSP3
18 928 15 2125 2125 SFO LAX N281VA 1A I DSP3
19 002 15 2105 2140 DCA SFO N621VA 1A I DSP3
20 1354 15 2145 2145 SFO BOS N361VA 1A I DSP3
21 909 15 2150 2150 LAS SFO N362VA 1A I DSP3
22 241 15 2225 2225 ORD LAX N364VA 1A I DSP3
23 874 15 2240 2240 DAL DCA N521VA 1A I DSP3
24 077 15 2255 2255 IAD SFO N622VA 1A I DSP3
25 867 15 2315 2315 DEN SFO N623VA 1A I DSP3
26 295 15 2315 2315 CUN LAX N282VA 1A I DSP3
27 923 15 2330 2330 LAX SFO N281VA 1A I DSP3
1703
Calc
Print
Add BP
Chain
Flt Follow
New Flt
Edit Info
Edit Leg
Rlsd
Rot
Met
07/15/2016 11:01

2016 (cont.)



2016 (cont.)



2016 (cont.)

2016 (cont.)

Federal Aviation Administration

FAA Home

Flight Delay Information - Air Traffic Control System Command Center

ATCSCC Home | Products | What's New | Site Map | ATCSCC FAQ | Diversion Forums | Text-Only Version

View by Region: Select a Region

Search by Airport: Airport Lookup (Enter city, airport code, airport name)

View by Major Airport: Select a Major Airport

The status information provided on this site indicates general airport conditions; it is not flight-specific. Check with your airline to determine if your flight is affected.Information on wait times at security checkpoints.

Legend

- General Arrival/Departure delays are 15 minutes or less.
- Departures are experiencing taxi delays of 16 to 45 minutes and/or arrivals are experiencing airborne holding delays of 16 to 45 minutes.
- Traffic destined to this airport is being delayed at its departure point. Check your departure airport to see if your flight may be affected.
- Departures are experiencing taxi delays greater than 45 minutes and/or arrivals are experiencing airborne holding delays greater than 45 minutes.
- This denotes a closed airport!

2016 (cont.)

ATCSCC
OIS
SYSTEM

7/18/2016

OIS Main Menu
- NAS Status
- Int'l Status
- East Directory
- West Directory
- Airport Layout
- Severe WX
- OPS Plans
- National Playbook
- Tier Info
- Current Restrictions

NATIONAL AIRSPACE SYSTEM STATUS

(Note: This page will refresh every 5 minutes. Last updated Mon, 18 Jul 2016 15:17:54 UTC. Provided by the FAA's Air Traffic Control System Command Center.)

NATIONAL PROGRAMS Help

PROGRAM NAME	START	END	SCOPE	REASON	AVG	AAR	PR	ADVZY	DA
EWR	1500	0359	ALL + CZY	WEATHER/THUNDERSTORMS	56	38	38	045	DA
SFO	1500	2159	1625 MILES. + CZV	WEATHER / LOW CEILINGS	64	34	34	044	DA
FCAC08	1900	0159	See Control Element...	WEATHER / THUNDERSTORMS	26	--	45	061	DA
FCAOD1	1900	0159	See Control Element...	WEATHER / THUNDERSTORMS	40	--	45	059	DA

GROUND STOPS Help

ARPT	UPDATE	POE	SCOPE	REASON	ADVZY

DELAY INFO Help

ARPT	AD	DD	TIME	REASON
LGA		-30	1358	TM Initiatives:SWAP:WX

AIRPORT CLOSURES Help

ARPT	TIME	REASON	REOPEN

DEICING Help

ARPT	DATE/TIME

Runway/Equipment Info Help

This is not a complete list of Runway/Equipment Status. Please consult the current NOTAMs for complete information.

Facility	Description

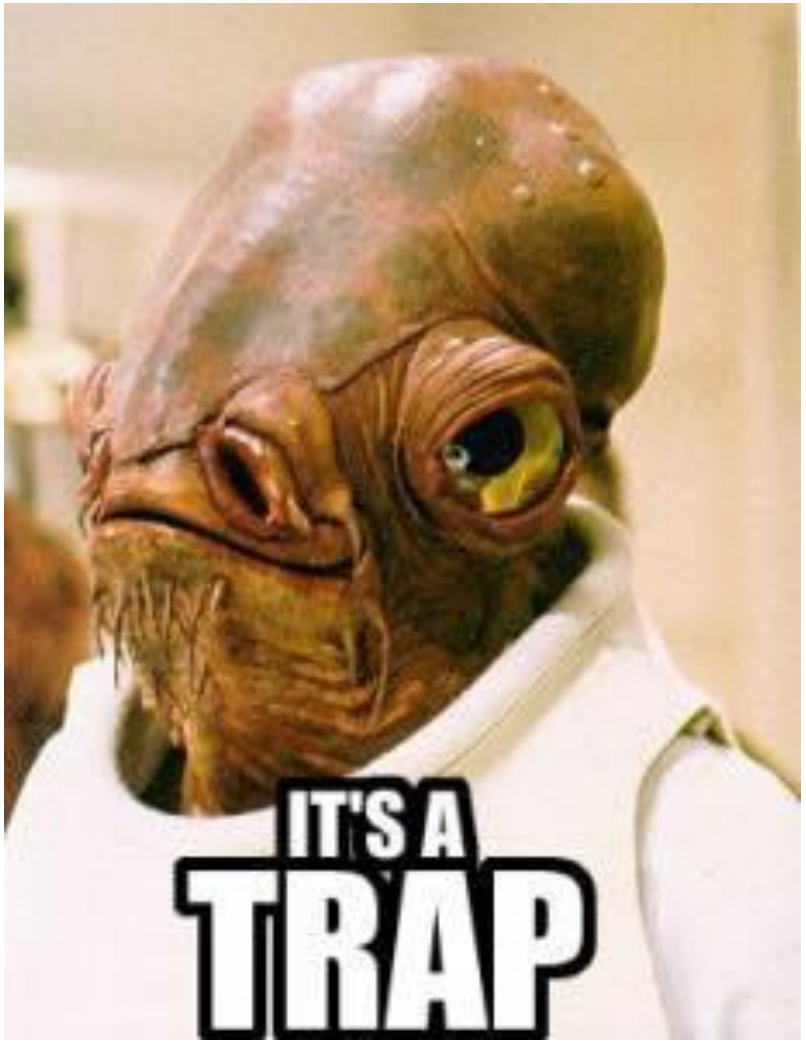
MISCELLANEOUS

NEXT PLANNING TELCON: 1515Z

2016 (cont.)

Part 3

- **What could possibly go wrong?**

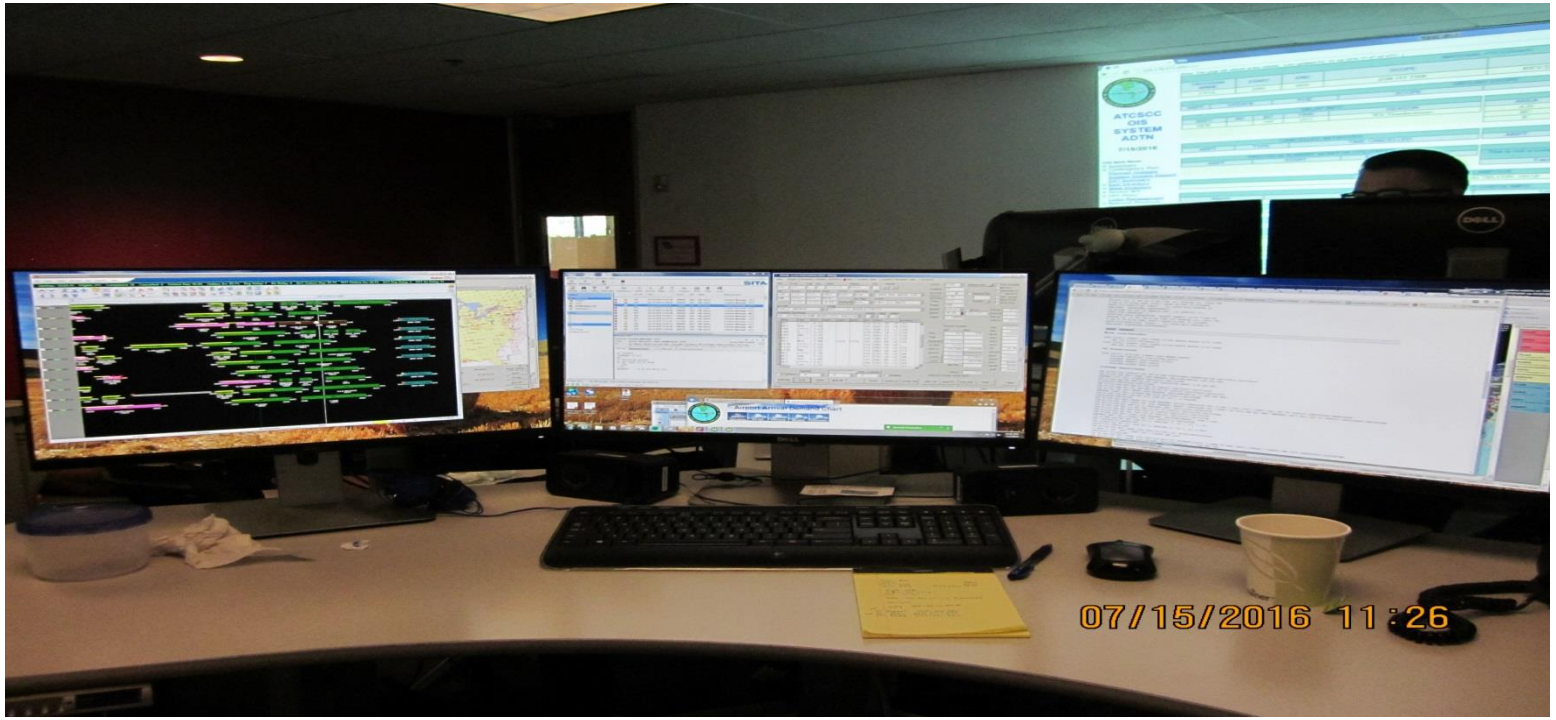

IT'S A
TRAP

GIGO

- **Over reliance on automation**

Lost in the shuffle

Too many applications running at the same time.



How many actions are needed?

- **Programs that do not interface.**

Tactical vs strategic

- **Pilots and dispatchers not working with the same information.**

Automation is not failsafe

- **Automation that can fail or be disabled.**

July 21-23

July 21, 2016

Southwest Airlines Computer Outage Grounds Fleet Nationwide - CBS News

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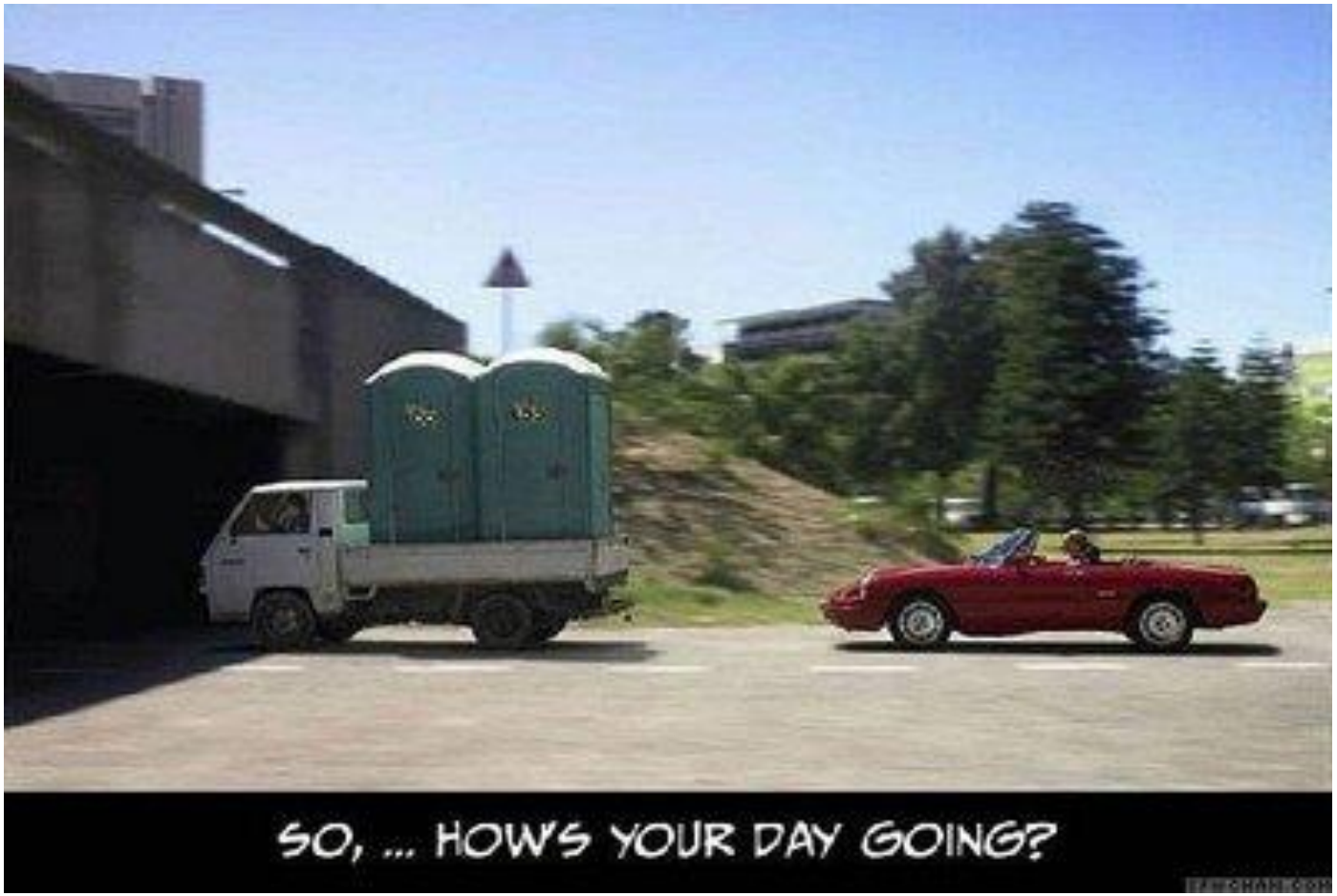
Military controlling GPS

- **ADDITIONALLY, DUE TO GPS INTERFERENCE IMPACTS POTENTIALLY AFFECTING EMBRAER PHENOM 300 AIRCRAFT FLIGHT STABILITY CONTROLS, FAA RECOMMENDS EMBRAER PHENOM PILOTS AVOID THE ABOVE TESTING AREA AND CLOSELY MONITOR FLIGHT CONTROL SYSTEMS DUE TO POTENTIAL LOSS OF GPS SIGNAL. DLY 0430-1200 1606090430-1606111200**

Loss of situational awareness



AOC shutdowns

Challenges ahead

- **Designing programs for workload distribution**
- **Reducing delays**
- **Improving fuel usage**
- **Creating redundancy**

Questions?

- **Remember, lunch is the next item on the agenda**