



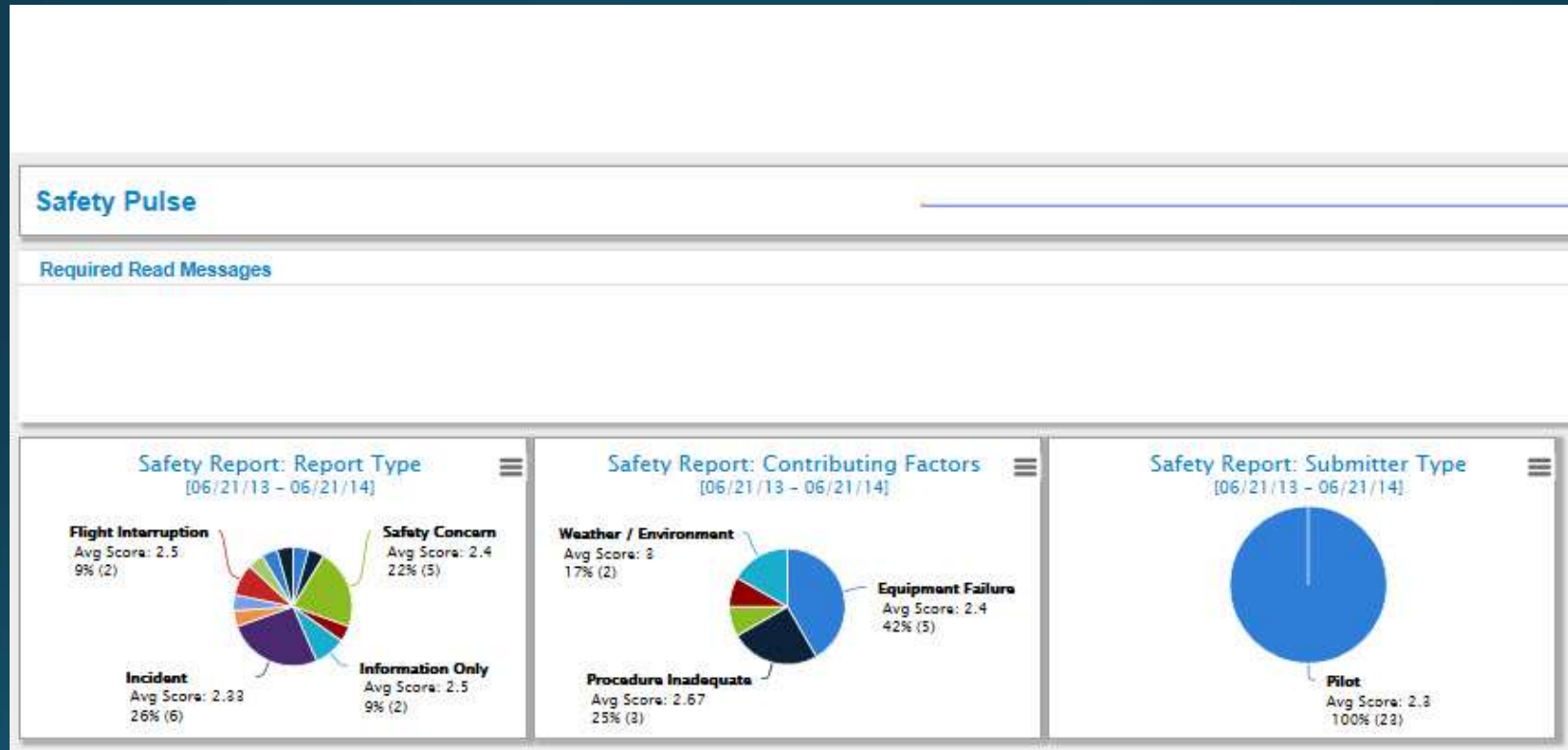
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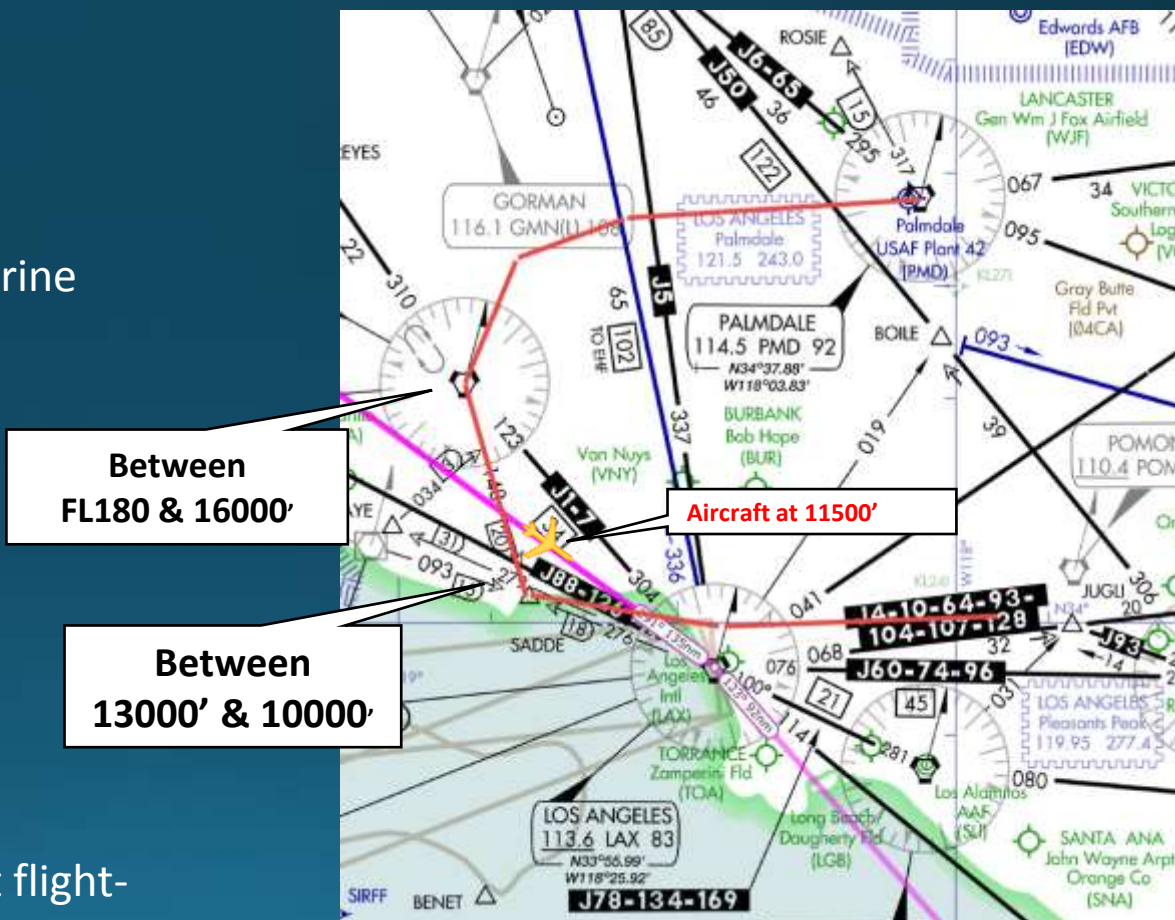
ICE BREAKER

- What ATC events would you pilots and controllers like to share with the group?



Narrative 1: VFR overflight of LAX Class B

- Light single-engine piston aircraft operating VFR
- Route – SBP-LAX-OCN-KCRQ @ 11500'
- VMC conditions along route of flight until descent into marine layer just prior to OCN
- Intermittent Mode-C led to decision not to request flight-following
- No “flight-following” with ATC
- A380 on ‘SYMON ONE’ STAR had a TA approaching SADDE
- Pilot asked to contact SoCal TRACON upon landing at CRQ
- Though not required ATC requests that VFR flights request flight-following through busy terminal areas



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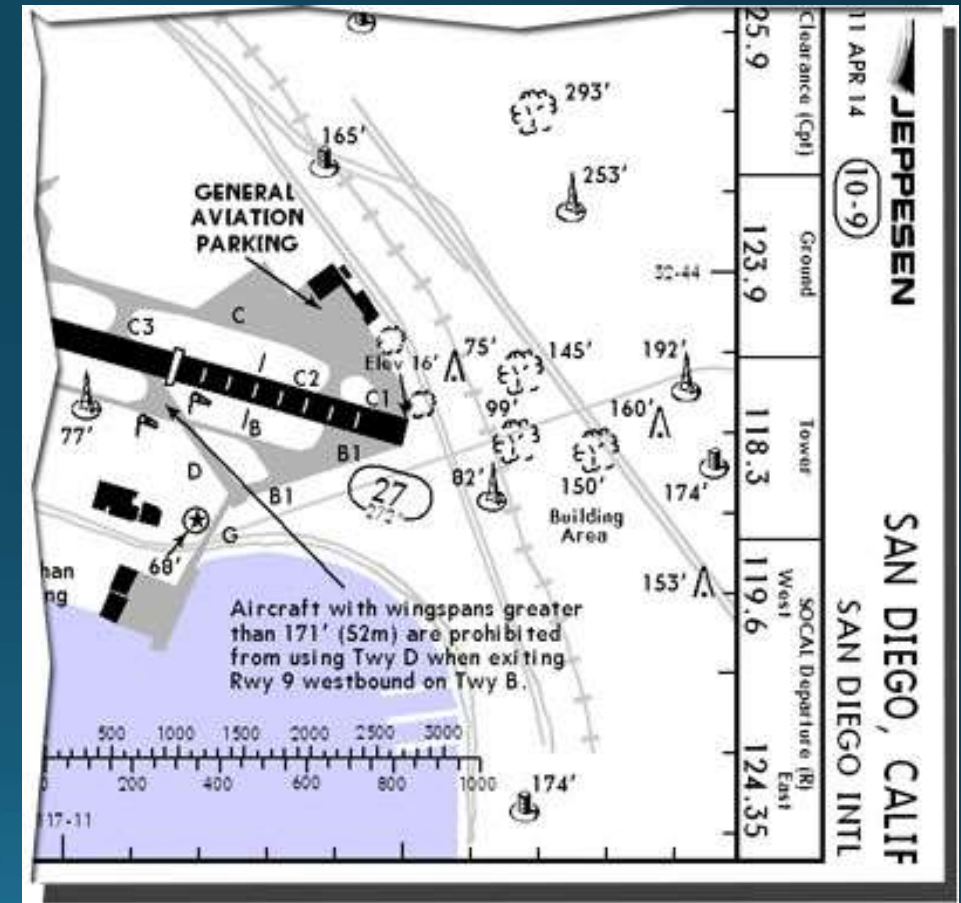
Open Discussion

- Root-Cause
- Mitigations



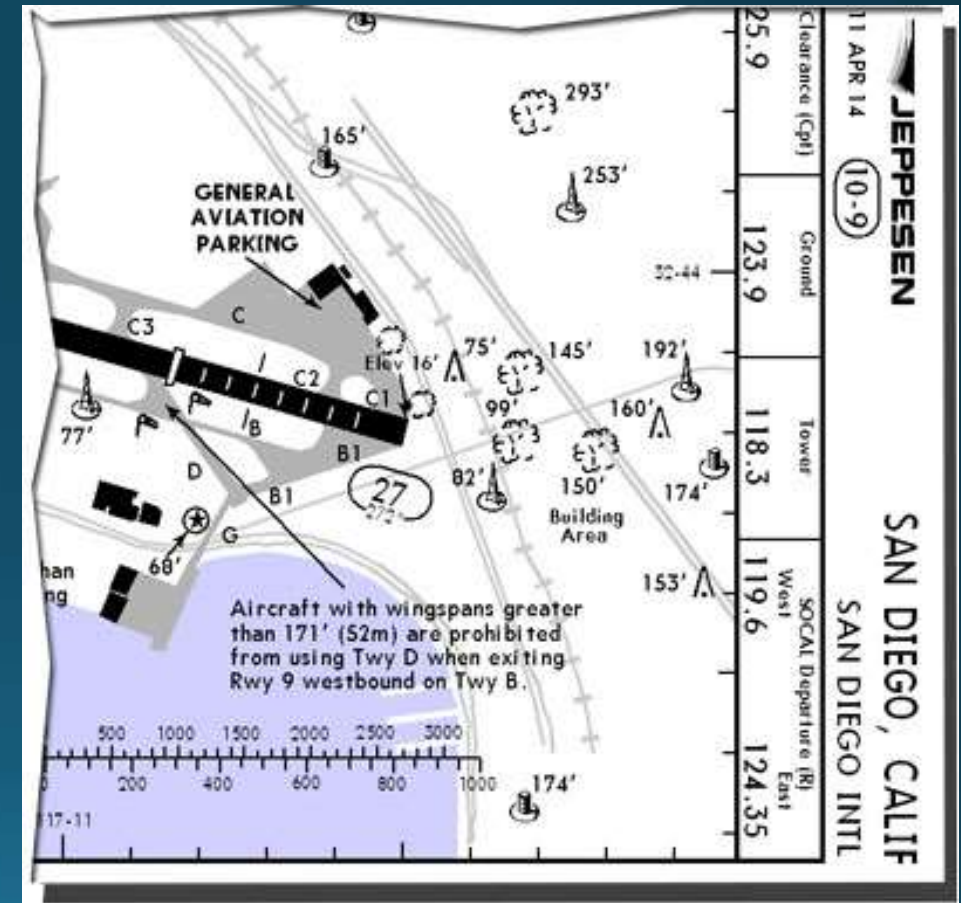
Narrative 2: KSAN Tower Controller Confusion

- Air carrier reported multiple confused clearances issued by the controller that led to a go-around and take-off cancellation
- Flight ahead given clearance – “Line-up-and-wait, traffic crossing down field, landing traffic 6 mile final”
- Then cleared for take-off followed immediately by clearance cancelled
- Reissued take-off clearance and reporting a/c given “Line-up-and-wait, traffic 4 mile final”
- Rapid transmission from tower about “Charlie 2 to the North”
- Tower immediately followed with asking another carrier to “move up to allow room at Charlie 2”
- Reporting a/c queried take-off clearance and was asked to vacate runway at ‘Charlie 2’
- Aircraft on final asked to “go-around”



Narrative 2: KSAN Tower Controller Confusion

- Reporter comment: “In less than 4 minutes the controller cleared a flight to take-off with traffic on the runway; abort; re-cleared for take-off; us to line-up-and-wait; clear the runway; and a go-around on final”



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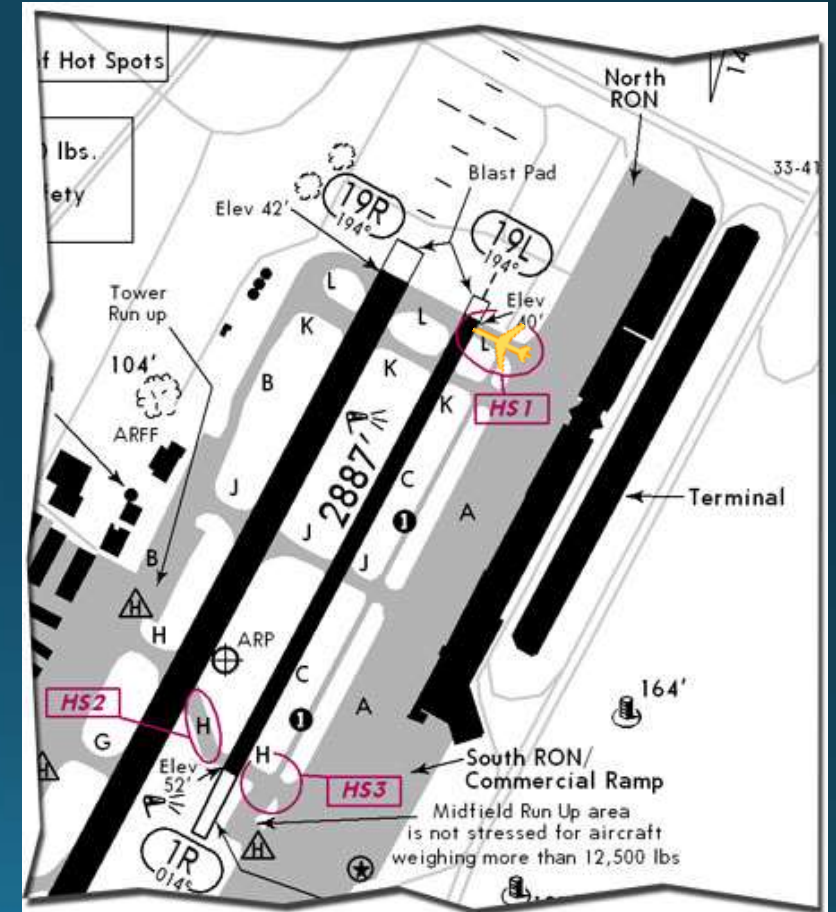
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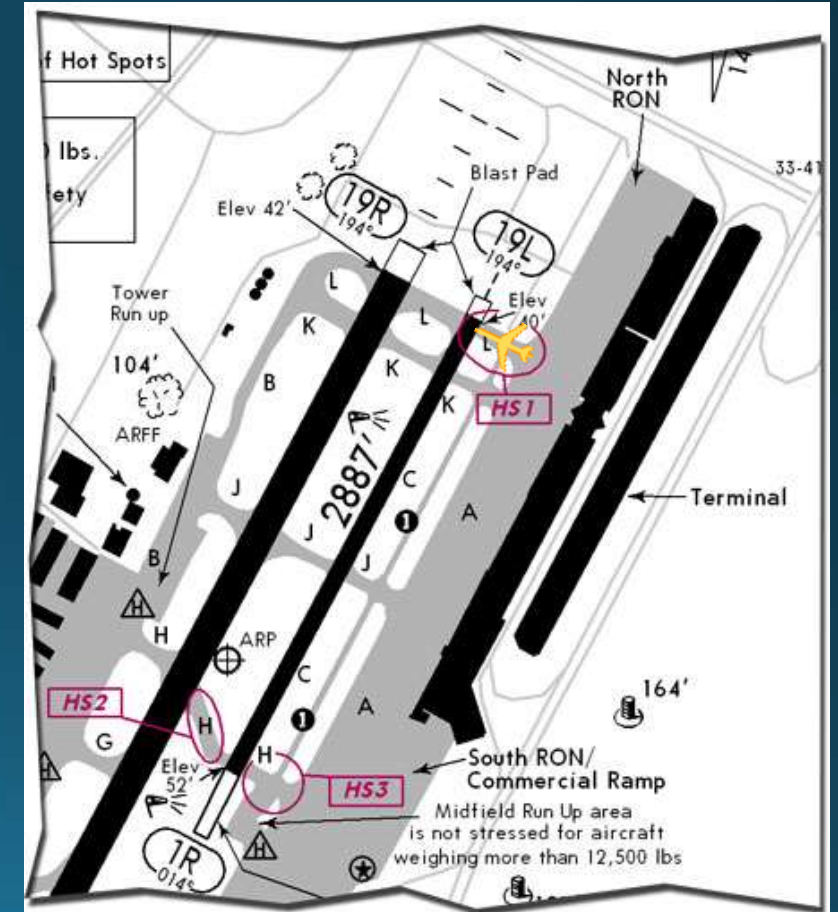
Narrative 3: Failure to hold-short

- Flight Crew of B737 crossed hold-short line of Rwy 19L without clearance. Small aircraft on final went around as a result
- Parallel Rwys. 19R & 19L in use at SNA
- Cleared to “hold short of ‘Lima’ and contact Tower”
- Tower clearance to turn on “Taxiway L & hold short of Rwy. 19L”
- Captain repeated the hold-short clearance to the FO
- NOTE: Air carriers always use Rwy. 19R
- “After turning onto ‘L’ and out of habit I crossed the Rwy. 19L hold line and would have crossed onto the runway except I saw a plane on short final for 19L. I immediately stopped short of the runway but past the hold line”.
- We reported to tower that we had crossed the hold line.
- Tower sent the small aircraft around and instructed us to taxi across 19L and cleared-for-takeoff on Rwy. 19R



Narrative 3: Failure to hold-short

- Reporter comment: “I distinctly heard the clearance to hold short of Rwy. 19L, even repeated it to the FO, but still, out of habit, intended to cross Rwy. 19L and hold short of Rwy. 19R as usual”.



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Narrative 4: Jump Zone conflict

- Controller describes conflict between an air carrier and parachute operations near the LOC
- Landing Rwy. 27
- B737 on downwind sequenced behind A320 on final



Narrative 4: Drop Zone Incursion

- Turned B737 to heading 180 and called the traffic to follow
- B737 reported the A320 traffic in sight
- B737 instructed to follow traffic; maintain visual separation & maintain 5000'
- Unable to clear the B737 for a visual approach due to an aircraft crossing southbound under the 8NM SAN final and landing at SDM



Narrative 4:

- Observed a normal rate of turn of the B737 from downwind to base but at a high indicated airspeed
- Advised the B737 of the preceding A320 airspeed of 180 kts
- Advised the B737 that he would be restricted to at least 3800' due to crossing traffic and to maintain 5000'
- Advised B737 of para jumpers south of the LOC and to "try not to cross the LOC"



Narrative 4:

- Instructed B737 to expedite turn to heading 290
- Instructed B737 to turn immediately to heading 330
- B737 passed through the jump zone with jumpers in the air
- Controller comment: “I relied on history trails which indicated to me that had he kept his turn going towards the A320 to follow as instructed he would not have crossed the LOC”.



Narrative 4:

- B737 Comment:
- ATC assigned us heading 180; maintain 5000'; expect 3800' to the 8 mile fix
- A half mile from the LOC ATC requested we not cross the extended center line as para jumping was in progress
- Then cleared to turn to heading 330 immediately
- No information on para jumping was provided prior to crossing the LOC c/l



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Narrative 5:

Climb Clearance Accepted by wrong aircraft:

- SoCal Controller supervising developmental on SNA departure sector
- Pilatus level at 6000 on vectors
- BE20 instructed to climb to 7000
- Read back blocked
- Climb to 7,000 executed by B737
- Conflict with Pilatus resulted in RA for B737



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HOT TOPICS

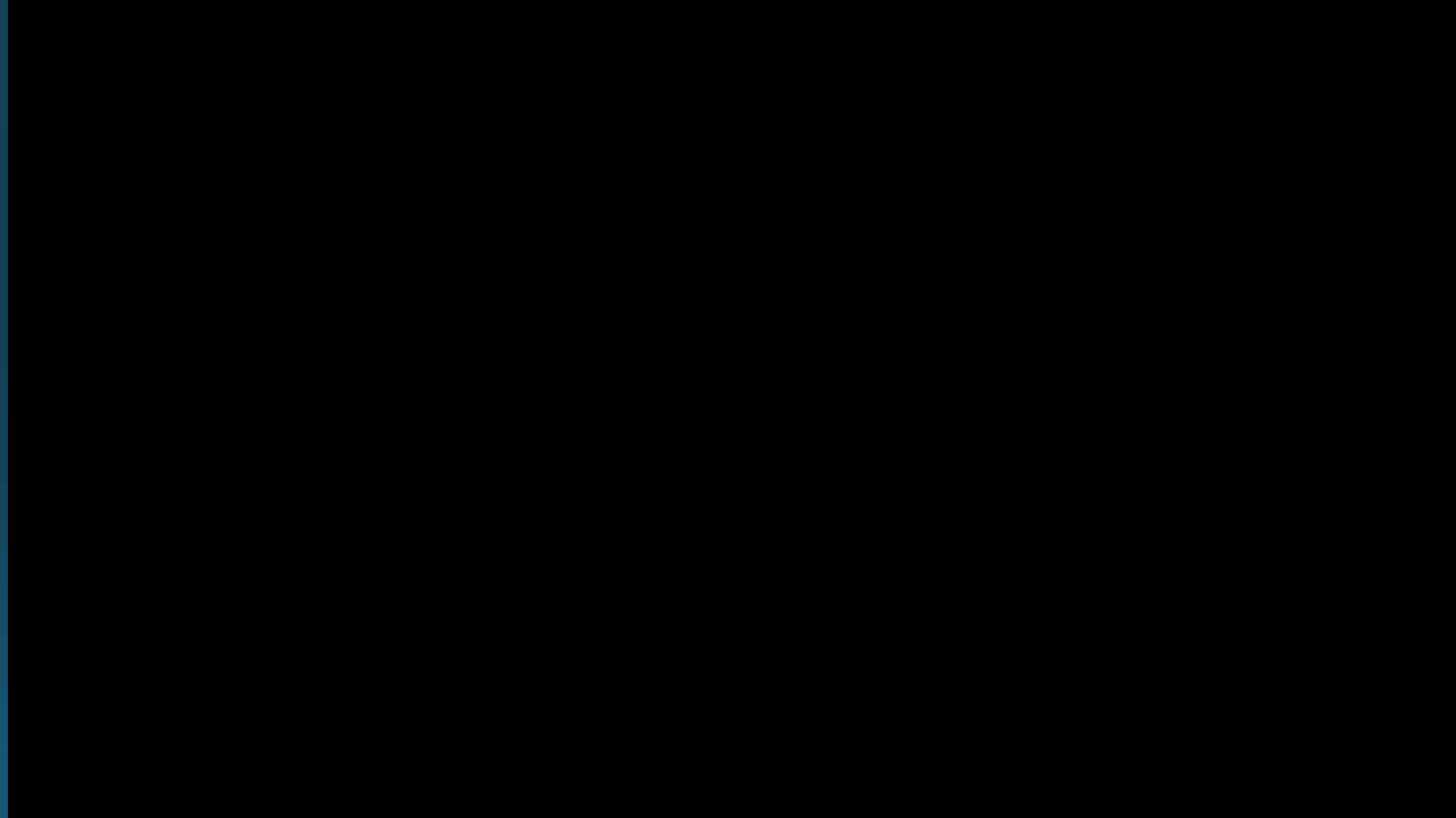
- Wake Turbulence
- Collision risk and TCAS Events
- Climb Via SID – Descend Via STAR
- Unstabilized Approaches



HOT TOPICS

Wake Turbulence

- A flight crew's experience:



HOT TOPICS

Wake Turbulence

- ATC separation criteria
- Wake Turbulence RECAT – e.g.: KMEM
- Wake Turbulence Mitigations
 - Takeoff from displayed threshold behind landing heavier aircraft
 - Landing behind heavier aircraft
 - Advising ATC of intention
 - ATC's expectations



HOT TOPICS

Table 1: Current FAA Wake Separation Standards (at the Threshold)

	Follower (Nautical Mile)					
		Super	Heavy	B757	Large	Small
Leader	Super	2.5	6	7	7	8
	Heavy	2.5	4	5	5	6
	B757	2.5	4	4	4	5
	Large	2.5	2.5	2.5	2.5	4
	Small	2.5	2.5	2.5	2.5	2.5

HOT TOPICS

Table 4: Example Aircraft Assignment to Proposed Six Category System

Category A	Category B	Category C	Category D	Category E	Category F
A380	B747 series	MD11	B757 series	AT72	E120
AN-225	A340 series	B763	B737 series	RJ100	B190
	B777 series	A306	A320 series	RJ85	C650
	A330 series	C-17	B727 series	B463	H25B
	C-5		MD80 series	B462	C525
			DC9 series	E170	
			E190	CRJ1/2	
			B717	CRJ7/9	
			GLF5	AT45	
			DH8D	AT43	
			F100	GLF4	
			F70	SF34	
			C-130 series	DH8A/B/C	
			C/KC-135 series	E135/145	

HOT TOPICS

Table 2: RECAT Wake Separation Standards

		RECAT Separation Matrix					
		Follower					
		A	B	C	D	E	F
Leader	A	MRS	5.0	6.0	7.0	7.0	8.0
	B	MRS	3.0	4.0	5.0	5.0	7.0
	C	MRS	MRS	MRS	3.5	3.5	6.0
	D	MRS	MRS	MRS	MRS	MRS	5.0
	E	MRS	MRS	MRS	MRS	MRS	4.0
	F	MRS	MRS	MRS	MRS	MRS	MRS



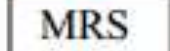
Separation was increased for some or all aircraft pairs



Separation remained the same for some or all aircraft pairs



Separation was decreased for some or all aircraft pairs



MRS Minimum Radar Separation (3NM, or 2.5 NM when existing requirements are met)

HOT TOPICS

Collision Hazards and TCAS Events

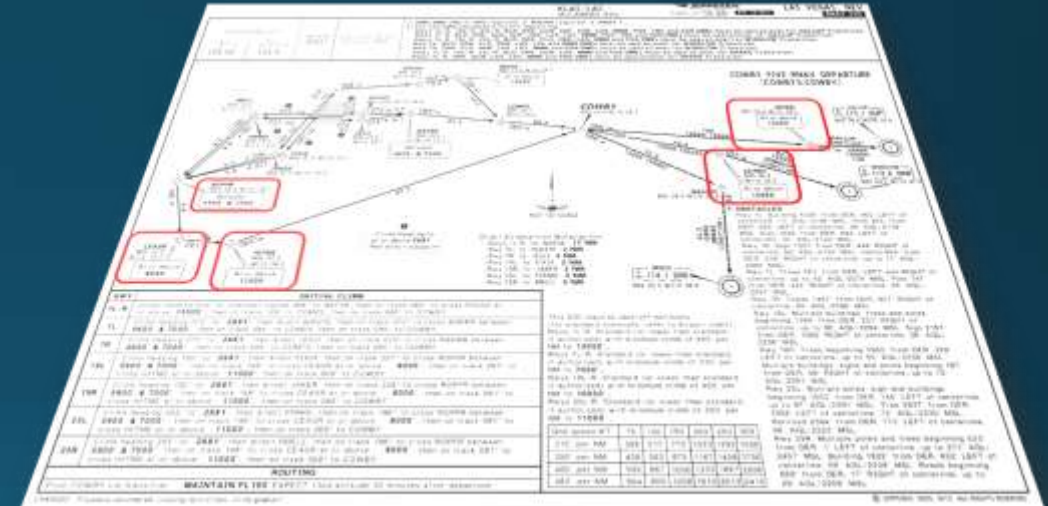
- Pilot induced vs. ATC factors
 - Vertical Rate
 - Late Descent
 - Lack of separation with VFR traffic
- TCAS Hotspots
- TCAS RA Mitigations



HOT TOPICS

Climb Via – Descend Via

- Verbiage
- NBAA Training Aids
- ATC issues
- Pilot issues



<http://www.nbaa.org/ops/cns/pbn/climb-via/>

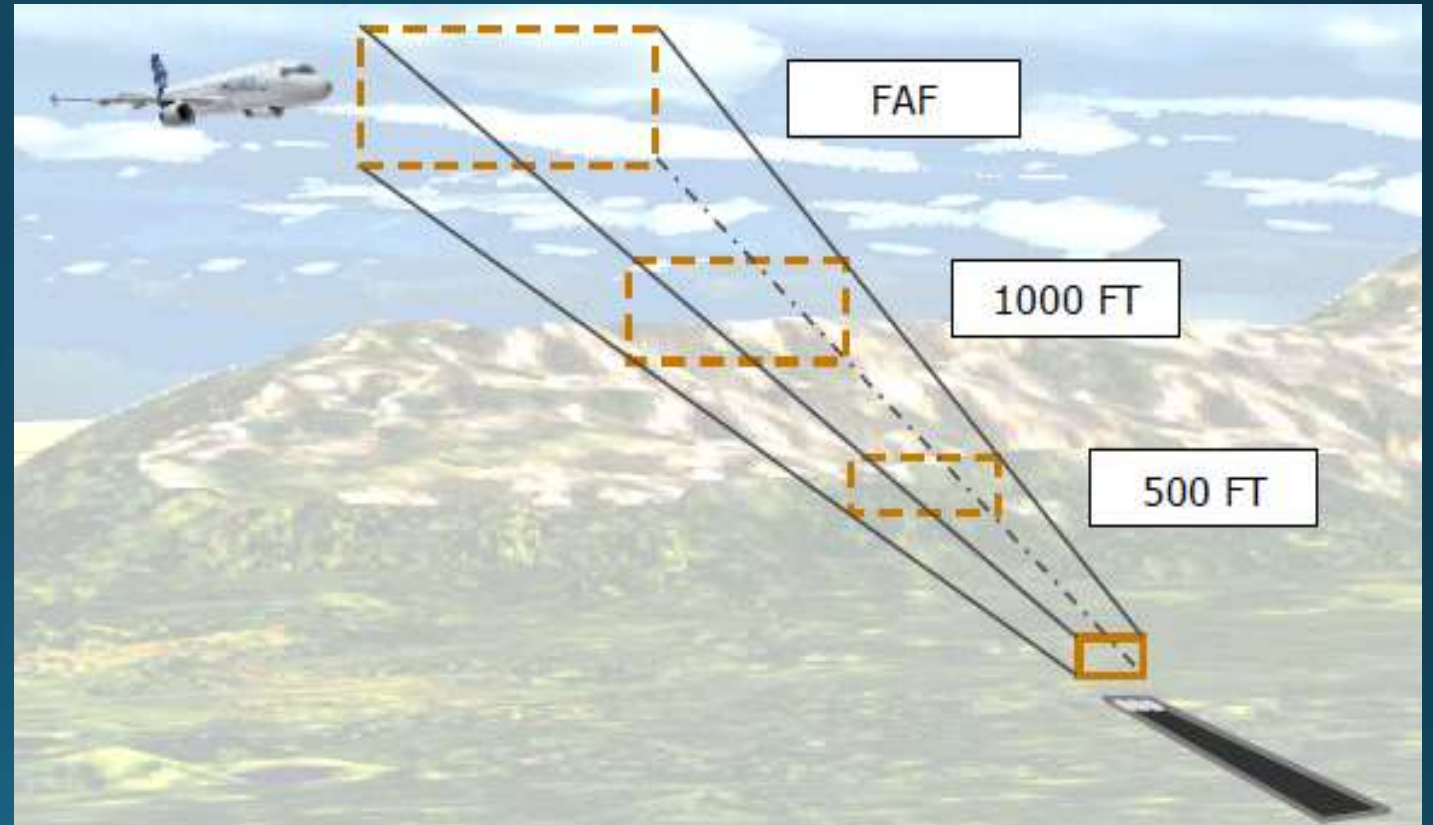
Important Requirements

- **Pilots are required to respond to climb or descend via clearances by repeating the "climb/descend via" clearance verbatim.** Abbreviated read backs will result in controllers repeating instructions until pilots give verbatim read back of the clearance
- When subsequently changing frequency pilots must advise ATC on initial contact of current altitude, "climbing via/descending via" with the procedure name, and runway transitions if assigned.
- If issued an altitude or speed not contained on the procedure, advise ATC of restrictions issued by the previous controller
- **It cannot be over emphasized that pilot use of the complete, correct phraseology is imperative.** Phrases such as "on the" or "descending on" a procedure are not acceptable and can create additional ATC workload to verify the clearance that was issued to the pilot by the previous controller.

HOT TOPICS

Unstablized Approaches

- Industry Standards / SOP
- ATC Induced
- Pilot Induced



HOT TOPICS

Recommended Elements Of a Stabilized Approach

All flights must be stabilized by 1,000 feet above airport elevation in instrument meteorological conditions (IMC) and by 500 feet above airport elevation in visual meteorological conditions (VMC). *An approach is stabilized when all of the following criteria are met:*

1. The aircraft is on the correct flight path;
2. Only small changes in heading/pitch are required to maintain the correct flight path;
3. The aircraft speed is not more than $V_{REF} + 20$ knots indicated airspeed and not less than V_{REF} ;
4. The aircraft is in the correct landing configuration;
5. Sink rate is no greater than 1,000 feet per minute; if an approach requires a sink rate greater than 1,000 feet per minute, a special briefing should be conducted;
6. Power setting is appropriate for the aircraft configuration and is not below the minimum power for approach as defined by the aircraft operating manual;
7. All briefings and checklists have been conducted;
8. Specific types of approaches are stabilized if they also fulfill the following: instrument landing system (ILS) approaches must be flown within one dot of the glideslope and localizer; a Category II or Category III ILS approach must be flown within the expanded localizer band; during a circling approach, wings should be level on final when the aircraft reaches 300 feet above airport elevation; and,
9. Unique approach procedures or abnormal conditions requiring a deviation from the above elements of a stabilized approach require a special briefing.

An approach that becomes unstabilized below 1,000 feet above airport elevation in IMC or below 500 feet above airport elevation in VMC requires an immediate go-around.

Source: Flight Safety Foundation Approach-and-landing Accident Reduction (ALAR) Task Force (V1.1 November 2000)

HOT TOPICS

Light Aircraft Fatal Crashes near Julian Vortac

- 11 fatal accidents near Julian since 1990
- More common in fall/winter
- Factors:
 - Loss of control
 - VFR continued into IMC
 - Scud running
 - Winter weather / Icing
 - Downdrafts

Plane crashes near Julian; two dead

A dog may also have been on the plane, which was headed to El Cajon

By **Teri Figueroa** and **Susan Shroder** 9:53 P.M. OCT. 9, 2013 Updated 4:13 P.M. OCT. 10, 2013

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COMMENTS

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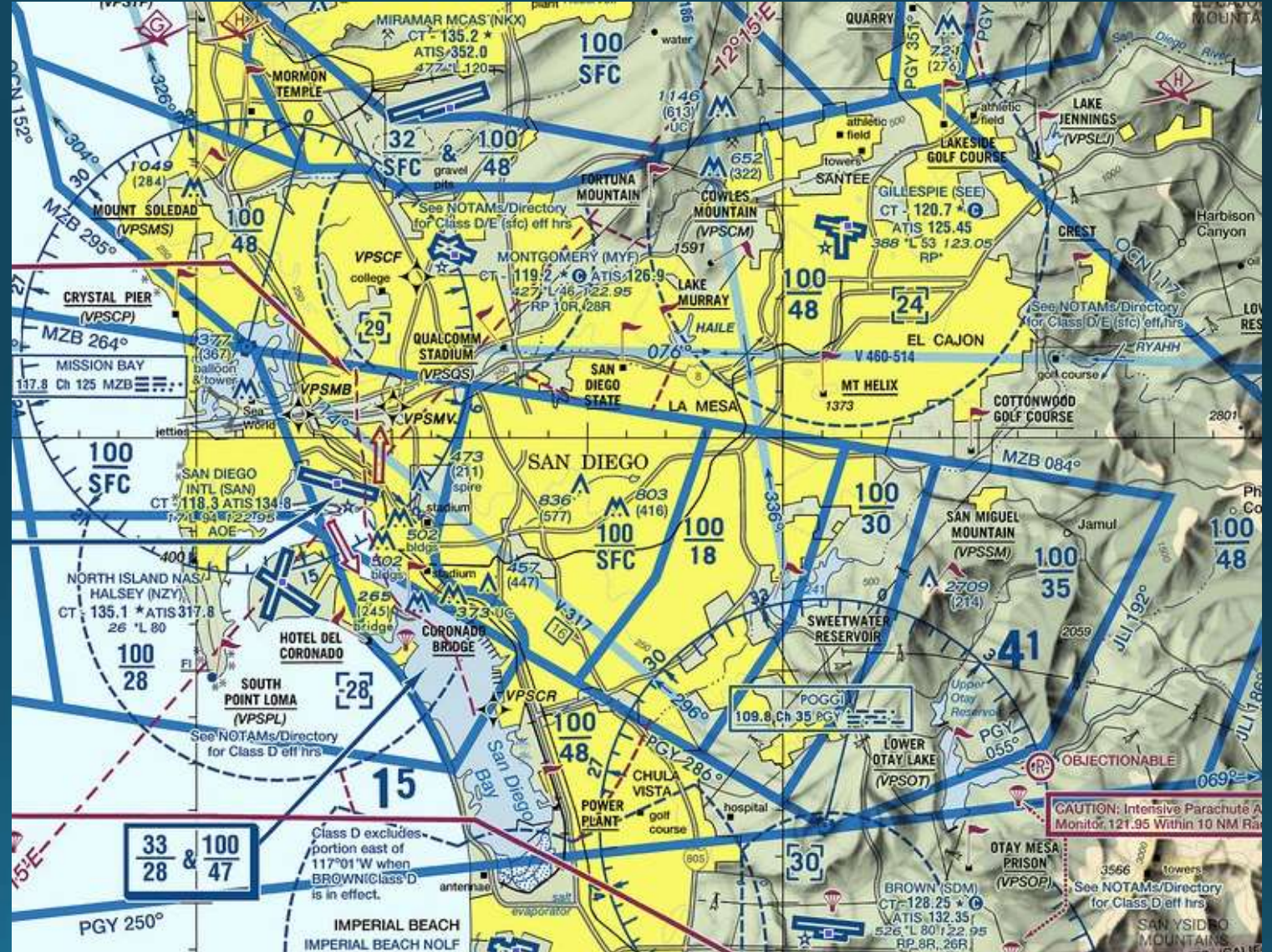


The wreckage of a single-engine plane rests on Volcan Mountain near Julian on Thursday. Two bodies were found in the wreckage of the plane, which was reported missing Wednesday night as the plane was en route from Palm Springs to San Diego. — John Gibbins

HOT TOPICS

Class B Containment / Class B incursions

- Turbojets required to remain above floor of Class B airspace when operating into or out of primary Class B airport
- Class B incursion hot spots



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Open Discussion





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