

Flight 1896
December 5, 2001
Voice Transcriptions*
IMPROVE-2

PH: This is the 5th of December, Wednesday, a transit flight from Eugene back to Paine Field. Onboard are Hobbs, Rangno, Wilson, Salazar, Sutherland, McMillen and Calvin Ingram. We spent the night in Eugene because of the problems we had on yesterday's flight with the pilots' airspeed indicators. This morning in Eugene Calvin dismantled those lines and found some water in them, put them back together, so we'll see if that solves the problem.

9:35 PM

PH: I can see straight away that our true airspeed has not changed. That's not unexpected because nothing was done to fix that problem whatever it is.

TW: I think our p-stat is a little high too. It's reading 1,100.

AR: We had that problem on the last too.

9:36 PM

PH: Our dew point is not working, -32? Do you think it's that dry? Art seems to think it is working.

9:39 PM

PH: Ken? We're not getting any TANS data so the position plot is not working.

TW: I think it's just getting done acquiring satellites right now. It's a little slow.

9:40 PM

TW: Here it comes.

PH: Right. I've got TANS-alt now.

9:41 PM

PH: We've got a decent true airspeed as well.

* AR = Art Rangno, CI = Calvin Ingram, KM = Ken McMillen, LS = Larry Sutherland, PH = Peter Hobbs, TW = Tom Wilson, VS = Vidal Salazar

TW: Yes, we do.

PH: Ken. We've got a true airspeed of 114 meters per second, which seems reasonable.

9:42 PM

PH: Calvin has just told me that the pilots' true airspeeds are okay at the moment. The direction looks reasonable and speed. Ken or Larry?

9:45 PM

TW: The log, I'm wondering if it's being saved.

9:46 PM

PH: Although we're not collecting any measurements, we're flying in clear air at the moment. We haven't flown in any cloud except momentarily on takeoff. Things look reasonable at the moment almost at the parameters better than at the end of the last flight.

9:47 PM

PH: We got 2-D data as well.

9:52 PM

PH: No HVPS data though. We're flying in virga here and getting good 2-D images, big particles. Any reason why the HVPS is not working?

TW: Nope.

9:53 PM

PH: Tom, let's try switching and see if we can trigger the HVPS.

TW: Okay. I'm going to need Art to shut down the CPI because I'm going to have cycle power on it.

PH: Art, are you busy on the CPI? Shut it down then.

AR: It's off.

PH: So no joy with that?

AR: For some reason our display is back to normal. I remember yesterday we couldn't get either the whole desktop visible or when we did it was full of vertical lines and very difficult to read the text.

PH: We're getting some activity on the HVPS, but I don't know if it's...

AR: It looks okay.

PH: Maybe it's okay.

AR: There's not much out there.

9:55 PM

PH: Ken?

KM: Go.

PH: Everything okay up there?

KM: It's working so far.

PH: It's working back here as well. We've got true airspeed.

TW: I'm wondering if somehow like the mouse is conflicting, you know. I think it's a PS-2 mouse, but I'm not sure. Do you see anywhere in the program where you can specify a serial port?

9:56 PM

PH: I can't hear you.

AR: I'm looking.

PH: So we're getting some data here at 14,900 ft.

9:57 PM

AR: Do you want to read any help that they have online here? I'm looking at acquisition system description.

TW: Can you scroll to the index maybe and do a little search for it just serial or something?

9:59 PM

TW: Click "okay" and then definitely disk highlight. Definitely click on it.

PH: Everything here is continuing to work except the CPI. I think the pilots are deliberately keeping it in cloud here to try to test the system.

10:00 PM

PH: Right, 300 per liter of ice particles at -12°C ?

AR: Yes, I think that's got a lot of rejects in there, but still it's probably going to be up over 50 to 100 or something like that.

TW: Peter? Calvin was wondering if one of you guys could call Mark Stoelinga to let the shop know that we're on our way.

PH: I tried calling. No one is there.

10:01 PM

TW: I think it might be for like if you want to save like a data stream with their data. I think like if we wanted to save the true airspeed we could save it with their data at the same time, I think, I'm not sure. It's like an external data system like a flight data system.

AR: I see. Okay.

TW: But it would be worth it to maybe look into where that is set and see what it says.

AR: Here's a window, auxiliary serial input. There's nothing in it though.

TW: Right.

AR: You're probably quite right. That's a place if you have an extra hard drive or something, another device.

TW: If we had like a p-stat that we wanted to have displayed on here, we'd just plug something into that serial port and have it appear right here if for some reason you wanted to do that.

AR: I see.

PH: I remember Paul saying that we could display all sorts of parameters on there if we wanted to.

10:02 PM

PH: How's the CCN counter doing and the CN?

TW: I think he just got back on the headset.

10:03 PM

PH: Is the CNC counter working?

VS: No, it's not working at the moment. I'm trying to clean it and everything. I think the chamber is a little bit too cold maybe that's what the problem is and the detector, the detector voltage is not right.

PH: That's the CCN?

VS: Yes and the CN is still warming up.

PH: It got cold overnight.

10:06 PM

PH: Ken?

KM: Go.

PH: This is the sort of ice we were flying in yesterday.

KM: Yes. We're just getting a trace out there. We're going to climb up to 16,000 ft and see if we can get a little bit more ice to check this.

PH: Good. When I say ice I mean ice crystals. We're not getting any icing here at the moment.

10:10 PM

PH: Climbing to 16,000 ft here to do a better test of the systems similar to the conditions to what we had yesterday.

10:11 PM

PH: But we're not picking up any icing here.

10:12 PM

PH: Art, why don't you call Don today and see if he's well enough to come in tomorrow and reseal those cards on the CPI?

10:13 PM

AR: Will do.

PH: I don't think the 1-DC is working, do you?

AR: I didn't notice it in clear air.

AR: The value varied too bad for this situation. I mean they're credible but they're jumping around from. You know they should be more consistent is what I'm trying to say.

PH: They started off zeros in clear air. I'm not sure as the flight progressed whether started to pop up again, you know, as they've done in the past. Would these concentrations be anything similar to the ones on here?

AR: Approximate those when counting that because most of these are also goes down to the small sizes. When I plotted them out together they can be fairly close so that within 50 to 100 would be pretty good.

PH: Which they are.

AR: Right. The ones like that 400 makes me wonder. Also when we're getting that size counts in clear air and then the spectra hasn't looked right. We can check that after this flight.

10:15 PM

PH: Here's the FSSP 300 spectra.

AR: I don't know what to make of that.

PH: 100.

AR: It looks pretty normal for ice crystals.

10:16 PM

PH: We've descended to 15,000 ft here. Still in cloud. Ice crystals.

10:17 PM

AR: I'm finally getting back to the bubble here after trying to unsuccessfully start the CPI until now. Looking around it looks like kind of a diffuse precipitating situation. I can't make out any clouds. I can still see the sun's disc. No sign of icing.

10:18 PM

AR: As we descend a little bit now, the precip may be thinning. I can see a broken stratocumulus layer below the aircraft. It looks like it's more than 5,000 ft below the aircraft judging by the rate of movement.

10:20 PM

PH: In virga here from above.

AR: There is something I haven't noticed before. There is something sticking out like a piece of plastic tubing out of one of our rear-pointed pipes on the right side of the fuselage.

PH: Is it one of our scientific pipes?

AR: I'm not sure. Do you want to take a look at this? It's one of those things where maybe it's been there and you never notice it until all of a sudden.

PH: Tom's working on the CPI at the moment so I won't disturb him. Is it the exit from the bag house?

AR: No, too far forward for that. It's just behind your position. The two silver pipes that come out a bit toward the rear. There are two of them together and one of them has something sticking out of it. It looks clear like either a Tygon tubing. I guess it's Tygon tubing.

PH: That may be the sampling device we use for the canisters.

AR: Yes, it could be. I just never noticed it before.

PH: We'll need to check it out on the ground to make sure it should be there.

TO SUMMARY

PH: Did CNC-2 ever come back up, Vidal?

VS: No. The CN counter is displaying the fueling command again, which I don't understand why. The CCN is still having some problems.

PH: CNC-1 didn't come up either?

VS: No. It was reading zero at the moment.

AR: We're going to be in clear air until we get down into the boundary layer here in a few minutes and it looks pretty dry plus that virga back there.

PH: Dew point -28.

VS: I think the main problem with the CN counter is the piping. Do we have anybody to look and check the inlets?

PH: I can ask the pilots to depressurize.

VS: That would be a good test.

PH: Ken?

KM: Go.

PH: Could you depressurize the cabin?

KM: Okay. Everybody take care of your ears.

10:25 PM

PH: I'm getting what looks like a reasonable reading on CNC-2 now.

VS: No, that was because I pulled the inlet just to see what happens.

PH: You sampled cabin air, did you?

VS: That's correct. See now it went back to zero when I plugged the inlet again.

PH: Plug it all up the way it's supposed to be and as we depressurize we'll see if it gives us a proper reading.

10:26 PM

VS: The CCN just started working okay. It's reading 31 particles per centimeter cubed. The CN counters are pretty much zero at the moment.

10:27 PM

AR: There's quite a bit of precipitation coming out of these lower stratiform clouds here and there. It looks like two layers. It looks like a boundary layer with bases in the scud level up ahead and then there are shelf clouds off the left wing here that have a little haze-type ice crystal precip off the left wing and then that merges into some heavy clouds kind of stratiform looking think bank ahead, which we'll see on the video. The time is 22:28.

PH: As we descend to about 6,700 ft, we'll be going into some cloud momentarily here.

10:29 PM

VS: I guess depressurizing the cabin didn't help. I unplugged the inlet and I don't feel any flow of air so that might be the problem.

AR: Cloud penetrations in about 5 s.

PH: There is no flow of air into the CNC-1 or CNC-2?

VS: The one at the bottom.

PH: Okay.

VS: The CCN is working pretty well. I guess it was just the detector was too cold and needed to warm up. It's working pretty well now.

PH: Cloud now. I'm getting some liquid water.

AR: Here comes one, a little turret here, very weak looking, but nevertheless probably has some water in it.

PH: Small column-type particles, ice particles. Liquid water went to about 0.4 on the FSSP.

AR: Here's another one just like it in about 3 s. We were a little closer to the top of that one.

PH: On that penetration the PVM and the FSSP agreed on the peak values; whereas the prior penetration of PVM was below the FSSP, which is what it has been for most of the flights. I don't think the PVM can be relied upon, but I think the FSSP is okay.

10:32 PM

PH: Ken?

KM: Go.

PH: We're picking up liquid water in these little turrets as we're going through as much as we've picked up or more actually than we've picked up for the whole flight.

10:33 PM

PH: Ken?

KM: Go.

PH: We've got a true airspeed here of 220 knots.

KM: Okay, let me check.

10:34 PM

KM: Yes, I work out the same thing.

PH: That's good.

KM: 210.

PH: Great.

TO SUMMARY

10:37 PM

PH: Getting darn cold now that we've depressurized.

AR: Yes. Tom, how long can we keep the computer up? We have some clouds coming up maybe a minute or two of in cloud here before we land.

TW: We still have to make the turn, you know, so definitely for at least a couple more minutes.

AR: I notice on flight 1893, I think the computer or at least there's no data after about 12,000 ft on the way back and I don't know what happened there.

TW: I think that might be one of the flights where we had a false alarm when we were landing. I remember we floated around for awhile.

AR: Okay. Thanks for reminding me.

TW: Liked that one. See I'm told to shut it down right now.

AR: The pilots?

TW: Yes.

PH: Just keep it on for a few minutes. We're just going into cloud here. It's quite a time before they land.

10:39 PM

PH: I think we are getting CNC-2 measurements now that look reasonable.

AR: You know I think here it looks like the pilots are going to descend in this hole maybe just to be on the safe side I guess. I'm not sure but it looks like we're going to avoid the clouds until we get under base.

PH: I'm closing down now.

AR: Tom, it looks like we're going to go under base here so I'm shutting down.

10:40 PM

AR: Lots of white caps down there on the Puget Sound.

END OF TAPE

Summary of UW Flight 1896

PH: This flight has looked pretty good. We'll do a quick summary. We got our TANS back up, we got our true airspeed. The pilots' true airspeeds are back. We've run the PMS 2-D and the 2-D images and the HVPS throughout the flight. They all look good. The only thing we haven't got up is the CPI.

AR: Roger. The CPI we couldn't get started. Static pressure came back and worked fine this whole flight after not working on the previous flight or at least over reporting the pressure and subsequently that impacting our standard pressure altitude calculation. Along with that the things that Peter mentioned about true airspeed, our winds are back.

BACK TO MAIN TRANSCRIPT

10:35 PM

PH: Art, do you want to put anything by way of summary on the tape?

AR: Well I kind of made those comments about instruments. That's pretty much it. We flew in some higher overcast altostratus with some virga. I doubt the precip we flew in actually got to the ground because we were intercepting it at such a high altitude, but if it was it was very, very light because of that dry layer below the altostratus. Just here coming into Puget Sound we had some nice sort of

plumped up stratocumulus clouds, tops -8°C to -7°C with a little ice in them, and then precip to the ground out there sort of south and east-west of Paine Field. I didn't see anything unusual other than that.

PH: Well this has been a pretty promising flight.

AR: Right. We had quite a few things working and maybe we can still get that CPI going some how.

PH: Don't give up on that. Keep working on it.

AR: Right.