March 2011 Condor Corner
Frank Paynter (TA)

Cross-Country Instruction the Condor Way

I have been talking for a while now about the potential for Condor as a training tool for XC racing, and as a fun activity all by itself. I have been fortunate to introduce a number of soaring pilots to the fun of XC racing in Condor, but I have not had much success pushing the idea of using Condor as a team-flying or XC racing instruction tool. So, I have decided to jump-start the process by taking on a couple of XC students myself, using Condor as the teaching tool. Scott Manley, my co-author of the Soaring mag Condor Corner series, agreed to be my guinea pig for developing the methodology and instructional material.

As an evaluation tool, I created a short XC task in Condor's default Slovenia scenery, and asked Scott to try his hand at it before we got together for our first lesson. He flew the task and sent me the FTR file, so I was able to get a bit of a feel for his XC skills before we actually got together - sort of like looking at OLC files before flying with someone. As it turned out, Scott's practice flight convinced me that the initial task I had created was a bit too easy, so I reduced the cloud base and thermal strength somewhat for our flight. Just another benefit of using Condor as a training tool - you don't have to wait for good weather or try to teach in the weather you have; you just make it what you want ;-). The figures below show the task layout. The task starts at Murska Sobota in the far northeast corner of the soaring area, and goes through two turnpoints before returning to the same airport. The task is approximately 55nm long and takes about an hour to fly.

Figure 1: Task Layout

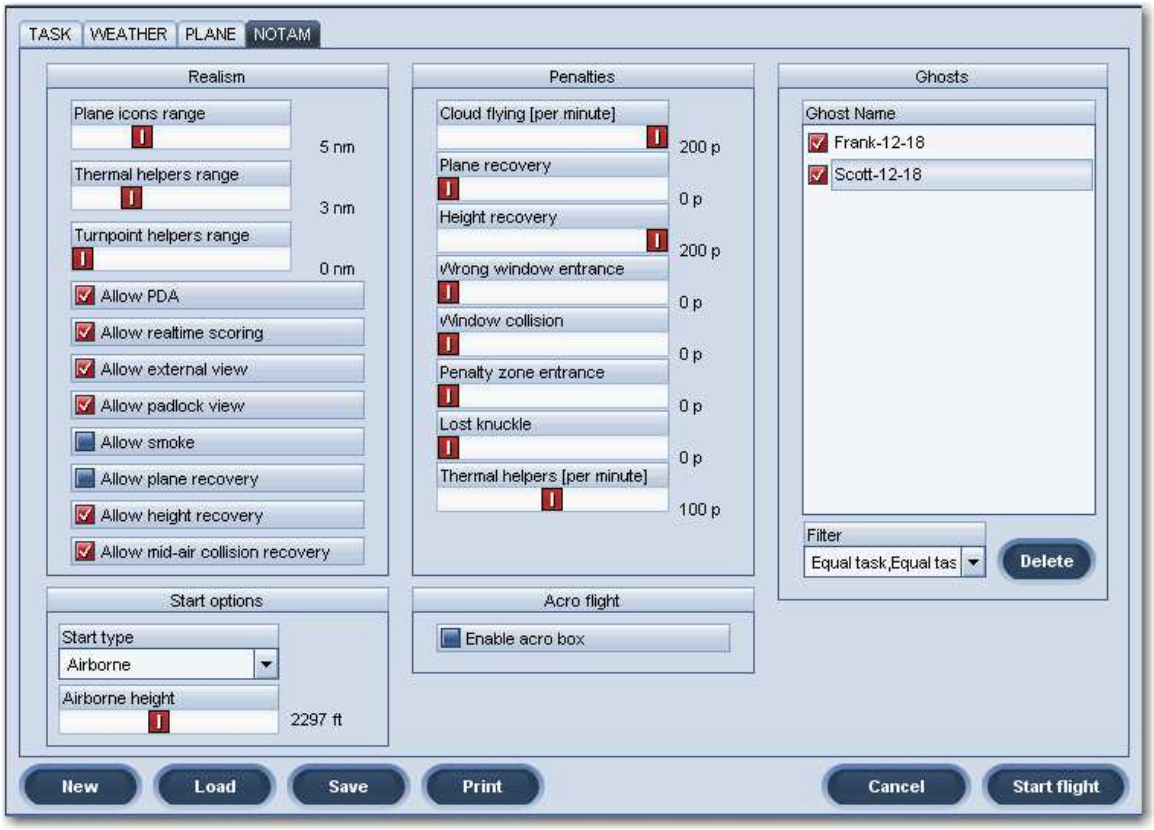

Figure 2: Frank and Scott Ghosts Selected

You can download this task from the SSA Magazine site and fly it yourself – go to the SSA site, click on Soaring Magazine → Current Issue and look for 'March2011CC_Electronic.ZIP'. This file contains this article (with larger images), the flight plan (.FPL) file and the flight track (.FTR) and IGC files for Scott and me. After unzipping the file, put the FPL file in C:\Program Files\Condor\FlightPlans\User and the FTR files in C:\Program Files\Condor\FlightPlans. Launch Condor and Select 'FreeFlight'. In the Task tab, select 'Load', 'User Flight Plans', and then select 'CC_XCInstruction1'. In the NOTAM tab you should see 'Frank-12-18' and 'Scott-12-18' in the 'Ghosts' list. If you want to follow our flights, check both boxes as shown in Figure 2 above.

When the time came for us to meet, Scott called me on the phone, and then I launched the task in Multiplayer Host mode from my laptop in Columbus, OH. Scott then 'joined' the task from his PC in Madison, Wisconsin. We were both flying modern standard class gliders (I was flying a D2, Scott had an ASW-28) and we were both flying dry.
After flying around a bit in the start cylinder, we headed out on course, with me slightly in the lead. I had Condor's 'Plane Icons Range' set to 5nm so it would be easy to keep each other in sight, but Scott wasn't having too much trouble keeping up. I was generally climbing a bit better, so for the first part of the flight I would crack the spoilers a bit when I got too far above or out in front. After the first couple of thermals, Scott was able to follow me fairly closely in one or two climbs, and was able to duplicate my climb rate. Later in the flight, Scott led out on a cruise segment or two, so I was able to watch his

pullup and initial centering turns from behind. Just as in real life, it is much easier to evaluate another glider from behind than it is from in front; this is a problem with traditional leader-follower flights, as the leader is, well, in the lead! Not so in Condor, as the leader can simply hit the 'F8' key to switch from a view out the front of their own plane, to a view centered just behind the student's plane. This means the leader can pull up into a thermal, center it, and then switch the view to see how the student is doing. In Condor, the leader can lead and follow simultaneously!

Throughout the lesson, Scott and I used our telephone connection just like an 'open mic' setup. This is just like talking from the front to the back seat in a dual flight, except we didn't have to raise our voices (nice!). I would talk about going straight and stopping only for above-average thermals, and Scott could ask questions (or tell me to shut up!). We both saw the same view out our canopies, so we could talk about which clouds looked good or bad, and why.

After the flight we landed with our gliders close to each other, and talked with each other about the flight. It was a little bit eerie how natural it seemed to be looking through a virtual canopy at another glider with a person in it, talking to them via (phone) headset. It was very easy to get the impression that that figure in the other cockpit was indeed Scott, not just a computer avatar.

During the debrief, Scott and I talked about the flight, and what we thought went well or not so well. Since both of us are experienced instructors, we discussed not only how the lesson went in terms of achieving a training objective, but also what we thought of the training scenario itself and the strengths and weaknesses of my instructional style vs Scott's learning style - interesting.

In addition to working with Scott Manley, I'm also working with Andy Brayer of the Harris Hill club. Andy is an up and coming XC racing pilot being helped by Tim Welles and Kai Gertsen as part of the wonderful HHSC XC training program. Andy has also participated in some contests in the HHSC club Discus CS. I was looking for additional guinea pigs, and Tim suggested that Andy might be game. Andy and I have been flying together now for two or three sessions, and I have already noticed significant improvement. Some of this is just getting used to Condor and the lack of control feedback, loss of peripheral vision, etc, but some of it is real improvement.

After a couple of flights, Andy was doing much better in the thermals. Better speed control, and tighter circles. Based on a suggestion from Scott in a previous flight, this time I turned on 'smoke' for my glider in the climbs, which allowed Andy to better visualize my thermalling circle and get into a better part of the core. Later on, we switched roles and Andy turned on his 'smoke' and I turned mine off. This allowed me to see his circle and measure it against mine - very informative, and something that you just can't do in RL.

And speaking of things you can't do in RL, Andy and I got in trouble about halfway through the flight - we got out of synch with the clouds and everything out in front of us

kept dying. Instead of having to abandon the task and the lesson, we each hit our 'miracle' button and instantly gained about 1500' - plenty to get back in the game. Of course, neither the ‘smoke’ nor the miracle functions are enabled for races, but for XC instruction this is a real godsend.

Figure 3: Using 'Smoke' for thermal training

Something I hear all the time when XC pilots get together is “Participation in XC racing continues to decline – what do we do? We talk about having more regionals, fewer regionals, more classes, fewer classes, Club-Class vs Sports Class, and on and on. The fact of the matter is that XC soaring in general, and XC racing in particular is expensive and time-consuming. Younger pilots don’t have access to XC capable gliders and when they do, they have trouble finding someone to help them up the learning curve. Older

pilots might have XC capable gliders, but they have the same problems with lack of instruction or mentoring. Right now there are less than 500 glider pilots in the U.S. who have ever flown in an SSA sanctioned competition, and less than half of these are active competition pilots (in a nation of over 250 Million, this makes an active XC racing pilot literally "one in a million"!

The only way we are ever going to increase participation in XC flying is to make it easier for younger and/or less affluent pilots to experience the thrill of XC soaring and give them a means to learn XC racing techniques in a safe and supportive environment. Condor isn't a perfect answer to this problem, but it has the potential to be a heck of a lot more effective than anything else we have tried.

If you are an experienced XC pilot who would like to encourage others to break the apron strings and/or participate in XC competitions, you should consider becoming proficient in Condor and then sharing your knowledge with others in the evenings and/or over the winter months. Instead of maybe making one or two 'leader/follower' flights with a less experienced pilot in a soaring season, you could make dozens or even hundreds of similar flights over the winter with students from anywhere on the planet.

If you are a beginning soaring pilot with cross-country dreams, you should be looking around your club (or other clubs – it doesn't matter with Condor) for an experienced XC pilot willing to fly with you in Condor. When you get some experience in Condor, then you should consider joining one of the many online Condor races, particularly the Monday Night Soaring (MNS) open-access races created for pilots in U.S. time zones.

As always, please feel free to contact me at paynterf@gmail.com with your questions, comments, or suggestions. If you are interested in becoming a Condor mentor or you are trying to hook up with someone to help you up the XC learning curve, I'll be happy to help in any way I can.