

## May 2012 Condor Corner

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Back in September of last year, I wrote about using Condor for cross-country flight training. In that article I explained how Condor was a much better environment for XC training than real-life (RL) for a number of reasons as summarized below:

- Instructors and students could plan training sessions in advance, based on an overall training syllabus. Maybe the syllabus would start with short flatland tasks in excellent soaring conditions in consideration of the shortened fatigue tolerance typical of a beginning student, progressing through various flatland experiences into more advanced ridge and mountain sessions. Although most sessions would be one-on-one, the syllabus would include occasional informal races ('scrimmages') with groups of students to keep everyone's interests up.
- The soaring weather would always cooperate with the lesson plan for a particular session. If the syllabus called for weak blue weather, then weak blue weather would be what is experienced. If a ridge task depended on 15kt from 315°, then that is what would happen.
- A variety of soaring terrain types would be included in the syllabus, including flatland, ridge, mountain, and mixed types. Specific contest soaring areas could be utilized at will for contest preparation.
- Lessons would occur whenever convenient for the student(s) and instructor, and would not interfere with the instructor's own training schedule. Sessions would be held on weeknights during winter months, for example.
- Instructors and students would not have to be in the same physical location in order to fly together. Students would be able to fly with area experts without actually having to travel physically, and area experts would be able to spread their knowledge more effectively.
- A real-time record, including the ability to play back complete 3-D position and velocity states, would be acquired in addition to the normal IGC position/altitude file. This file (one for each participant) would be available for post-flight performance assessments and/or for use as a 'rabbit' in subsequent practice flights under identical conditions.

As I mentioned in the September 2011 article, I decided to put my joystick where my mouth was by offering XC instruction sessions in Condor over the winter months. I had actually experimented with this on a volunteer basis the previous winter (2010/11) and was encouraged by the results, so this winter I offered 3-hour mentoring sessions in Condor \$75, all proceeds to be donated to the U.S. Soaring Team fund. I decided to charge for the sessions this time to filter out non-serious prospects, and to generate some money for the team fund. Because I'm a geek by nature, I Googled around a bit and found a free scheduling application (see <http://www.calendarspots.com/>) and set up a site so prospective students could sign up online for any open session (see <http://condorxc.calendarspots.com/main.php?c=197572615010>). I set up the sessions for Wednesday and Thursday evenings at 7pm EST as a convenient time for most of the U.S. I decided that I didn't want to interfere with my normal Monday Night Soaring (MNS) races, and I felt that 5-6 hours a week of instruction time was about all I could handle and still stay married (my wife of 30+ years is very

supportive of my soaring addiction, but last winter's schedule of non-stop mentoring and racing in Condor maxed out my marital credit card account)

## Results:

A first 3-hour session with a new student would typically go as follows:

- Prior to the session, there would typically be some back and forth via email regarding their Condor setup. Many of my first-time students had never connected to any on-line races, and thus wouldn't know if their version of Condor was up-to-date or not. Unless their copy was the latest version, we wouldn't be able to fly together either. In addition, there was usually some discussion about joystick and keyboard setup.
- At the time of the session, the student would call, and we would start with about a half-hour of pre-flight discussion and Condor setup tutoring. Also at this time I would ask if there was anything special the student wanted to do or cover.
- For this first flight I had constructed a small 90-mile triangle with decent, but not great, thermal conditions in a flat area of the default Slovenia scenery. I chose this scenery because this particular scenery comes with each Condor installation, so all students are guaranteed to have it available. A 90-mile triangle with decent weather and high-performance gliders is actually pretty short for a 3-hour session, but I had learned the previous year that first-time students often had some difficulty even making it around a cross-country course, much less making it around at a decent speed. Also, the shorter task allowed some time for post-flight debrief without running too late.
- I set up the flight with an air-start so the student wouldn't have to deal with an aerotow, and also to save time for the actual flight. Also, this gave me a few minutes to talk the student through the various PDA screens – this was important because part of the 'lesson plan' for the flight itself was to teach the student how to use the in-sim PDA to manage a Condor cross-country flight.
- After flying around in the start area for a while, we would head out on course. I use the 'smoke' feature (T keyboard command) of Condor to make my glider more visible from a distance, and I often use the 'remote padlock' (F8) feature to switch my view to directly behind the student's airplane – thereby allowing me say something like "OK, I'm at your 10:00 low position, two-tenths of a mile away – see the green and red smoke trail?" Also, in thermals I could 'follow' the student's glider with the remote padlock view, even if I was above them at the time, commenting on bank angle, position relative to the core, etc. This remote padlock feature is just one of many attributes of the Condor simulator that make it far superior to 'real life' for XC training, in addition to the obvious advantages of being able to conduct the training from two different locations at the same time, at night, in the winter!

- As the flight progressed along the first leg, I would keep up a running conversation with the student, pointing out clouds ahead and asking the student to participate in cloud/route selection. Depending on the student's comfort level, I would also start introducing Doug Jacob's '3 /30/3/30' (3 seconds/30 seconds/3 minutes/30 minutes) concept – the idea of keeping both near and far-term considerations and weather conditions in mind as the flight progresses. Quite often, the student would become fixated on very near-term goals, like watching the vario or keeping track of my glider, and wouldn't be thinking at all about anything else. One of my goals in this initial flight would be to identify and break up any such fixations.
- The triangle task was deliberately set up so the first leg was downwind, and the second (crosswind) leg ran along the upwind side of some very mild high ground. Even though neither the wind for the flight nor the high ground was really significant for the task, their presence allowed me to bring up the idea of planning to arrive high at the end of the downwind leg, and then the idea of taking terrain features into account (by planning to pass on the upwind side of the high ground). The high ground also allowed me to propose it as a 'plan C' for a possible save, in case 'plan A' (the next good looking cloud) and 'plan B' (the cloud after that) both fail.
- Somewhere on the second leg I would start talking to the student about final glide planning, and this subject almost always came as a surprise to the student – they had never thought about final glides before!. We would talk over the situation, using the final glide screen on the in-sim PDA to determine how much additional altitude would be required to get to final glide, and how that might play out in terms of additional climbs needed, etc.
- Once we reached final glide altitude, then the conversation would turn to final glide management – the idea that we should pay more attention to the 'speed to fly' director on final glide than during the rest of the task, and the importance of maintaining a conservative altitude margin as the final glide progressed.
- After we had both finished the task and landed, we would debrief the flight. Quite often the student would have questions or would like to go over a particular concept covered in the flight itself. After the debriefing, I would close the Condor simulator, save the Condor flight track and email it to the student so they could use it as a 'ghost' if they wanted to fly the same flight again.

I would have to rate the results of my mentoring program as an unqualified success, pretty much beyond my wildest dreams. Also, judging by the number of students who returned for repeat sessions, it appears they felt they were getting good value as well. Students exhibited a fairly wide range of skills, both in terms of familiarity with Condor and in terms of XC flying in general, and I found I had to adjust my teaching style up and down the scale accordingly, just as I have to do as a 'real life' instructor. I also found that almost all students thermalling skills could use improvement (who's doesn't?), and whatever weaknesses they have in real life were also evident in Condor. On this second point – a common reaction of a student would be "oh, I have this same problem in real life!" When you consistently get this sort of reaction from students, it is a clear validation that the simulation is 'good enough' to serve as an effective training environment.

By the time I had to submit this article for publication in mid-March, I had flown 16 sessions with 10 students, earning over \$1000 for the U.S. Soaring Team fund. 5 of the 10 students came back for a second session, and one flew with me three times. As an interesting side-effect of the sessions, I discovered that many of my students started showing up for online Condor races like the popular USNS (United States Nightly Soaring, held every night at 9pm EST) and MNS (Monday Night Soaring, held every Monday night at 7 and 10pm EST) races and were clearly improving their XC skills in the process. I found myself in the position of having to fly faster so as not to be run over by my own students!

In closing, I offer this vision for the SSA in general, and the U.S. Soaring Team in particular: For the last two years I have been using Condor to help soaring enthusiasts learn more about cross-country flying in an environment that is far and away more conducive to learning than anything we have had before. Not only do we now have the ability to introduce more glider pilots to the joys of soaring in general and cross-country soaring in particular, but we have the means to translate that interest into a funding source for the U.S. Soaring Team. The only other program that I know about that has been a successful funding source for the U.S. Soaring team is the wonderful efforts by Karl Striedieck and Doug Jacobs to raise funds for the U.S. Team by selling rides in their two-seater gliders at soaring contests around the country. This has been a very popular program, and all available seats are usually booked up well before the soaring season actually starts. Imagine what would happen if 'seats' were available all year long, and you didn't have to travel to a distant airport for the flight, and you didn't have to worry about the soaring weather on your assigned day? Think what would happen if aspiring cross-country racers had the opportunity to fly with U.S. Soaring Team members over the winter months, for a nominal charge. Think what would happen if ALL members of the current U.S. Team were to be available for online sessions – The U.S. Soaring Team could easily become financially self-supporting, and maybe even spark off a resurgence in cross-country soaring interest in the process!



START GATE CLOSING IN: 00:02:14



Tracking 3D

F8 J.Player Discus2 Speed: 100 kts Altitude: 4019 ft Heading: 357 Vario: - G: - Lat: 40.22.113N Lon: 077.37.186W