



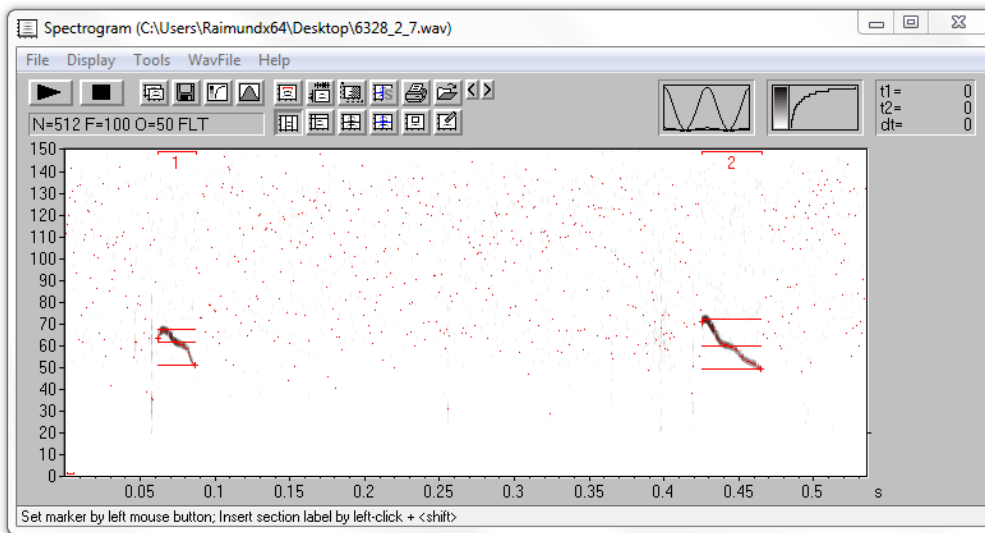
# Avisoft Bioacoustics

**Sound Analysis Software and  
Ultrasound Recording/Playback Hardware**  
for Investigating Animal Acoustic Communication

Year	Milestones
1990	Initial launch of the sound analysis software Avisoft-SONAGRAPH (IBM PC running MS-DOS)
1993	Avisoft-SASLab Pro 1.0 (migration to Windows)
1999	Automatic Parameter Measurements tool in SASLab Pro
2001	Ultrasound recording hardware Avisoft-UltraSoundGate
2004	Condenser microphone CM16/CMPA (15...200 kHz)
2005	Whistle Tracking algorithm for detecting soft USVs in low signal-to-noise ratio recordings
2007	UltraSoundGate Player

# Avisoft-SASLab Pro features for processing USVs

- Automatically detecting calls and measuring call parameters

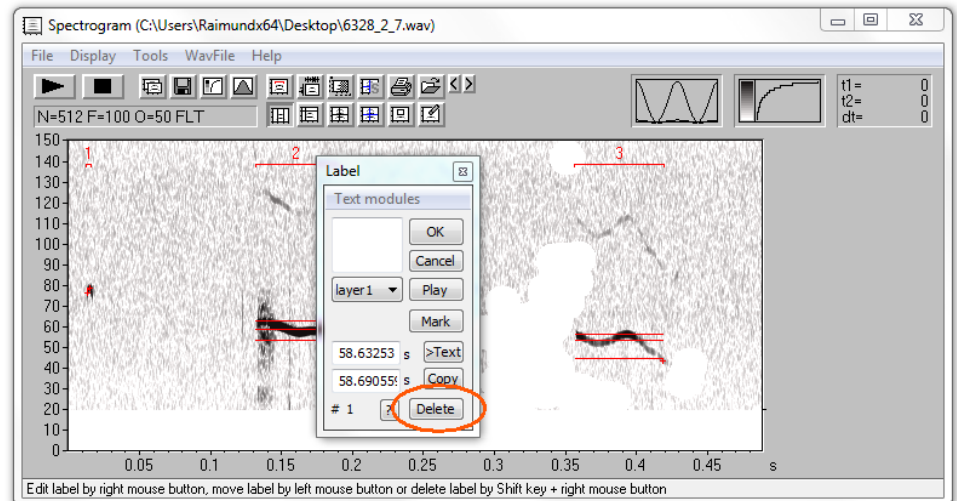
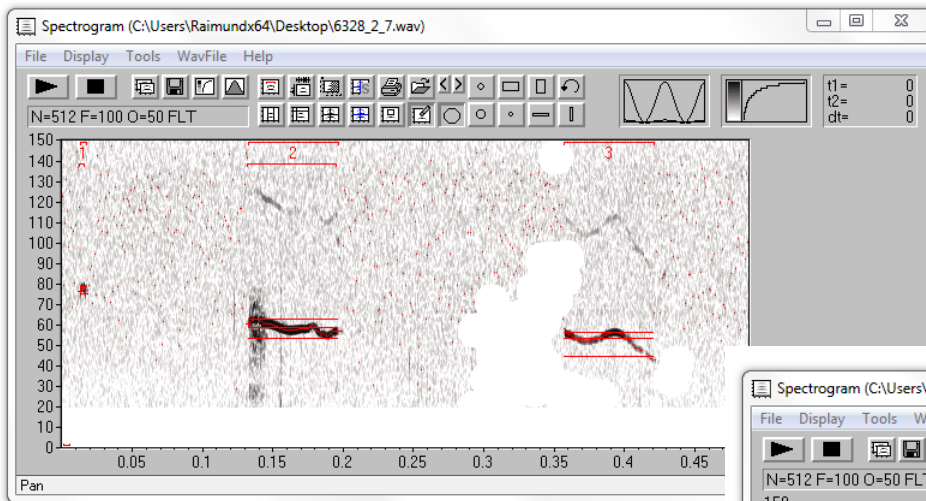


The Automatic Parameter Measurements window displays a table of call parameters for two detected calls. The table includes columns for call number, duration, interval, and various peak frequency measurements.

#	duration	interval	peak freq(start)	peak freq(end)	peak freq(minentire)	peak freq(maxentire)	peak freq(meanentire)
1	0,0247	-	63200	50900	50900	67300	61100
2	0,0392	0,3635	70800	49200	49200	72000	59500

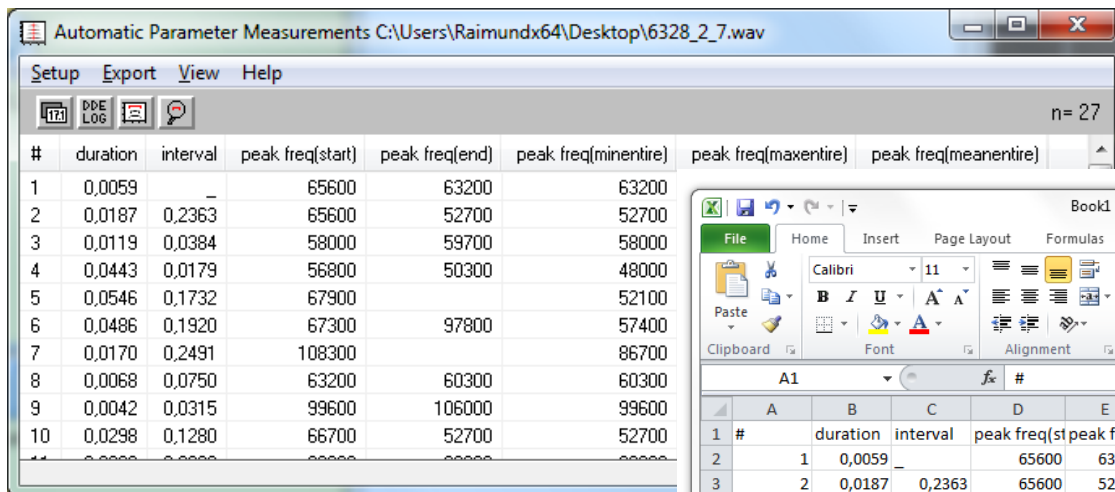
# Avisoft-SASLab Pro features for processing USVs

- Manually editing the automatically detected calls



# Avisoft-SASLab Pro features for processing USVs

- Exporting measurements to Excel

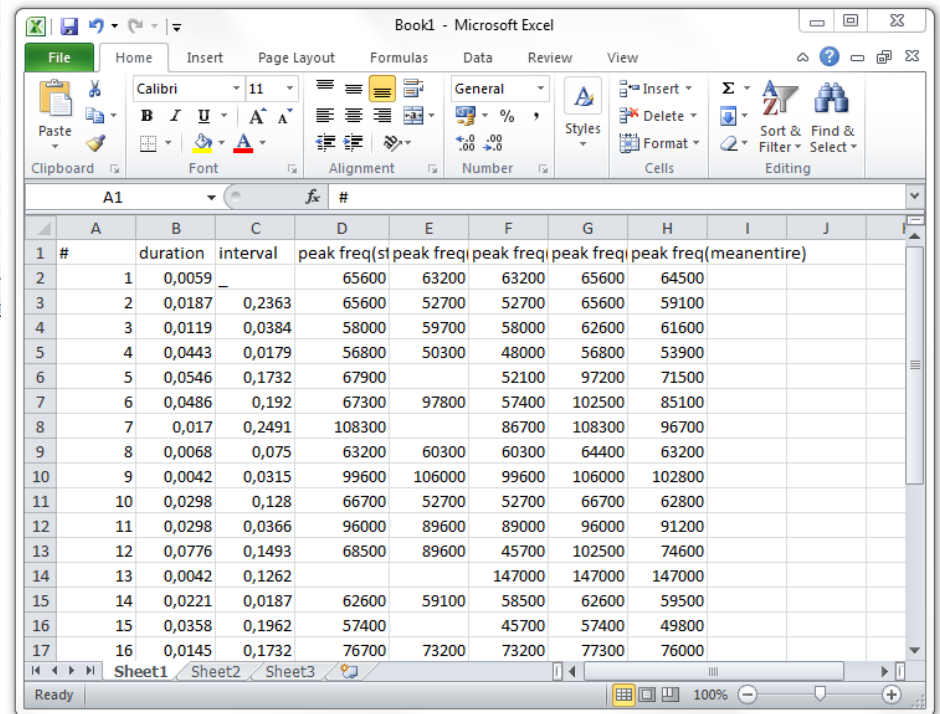


Automatic Parameter Measurements C:\Users\Raimundx64\Desktop\6328\_2\_7.wav

Setup Export View Help

n = 27

#	duration	interval	peak freq(start)	peak freq(end)	peak freq(minentire)	peak freq(maxentire)	peak freq(meanentire)
1	0,0059	-	65600	63200	63200	65600	64500
2	0,0187	0,2363	65600	52700	52700	65600	59100
3	0,0119	0,0384	58000	59700	58000	62600	61600
4	0,0443	0,0179	56800	50300	48000	56800	53900
5	0,0546	0,1732	67900		52100	97200	71500
6	0,0486	0,1920	67300	97800	57400	102500	85100
7	0,0170	0,2491	108300		86700	108300	96700
8	0,0068	0,0750	63200	60300	60300	64400	63200
9	0,0042	0,0315	99600	106000	99600	106000	102800
10	0,0298	0,1280	66700	52700	52700	66700	62800



Book1 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

A1 #

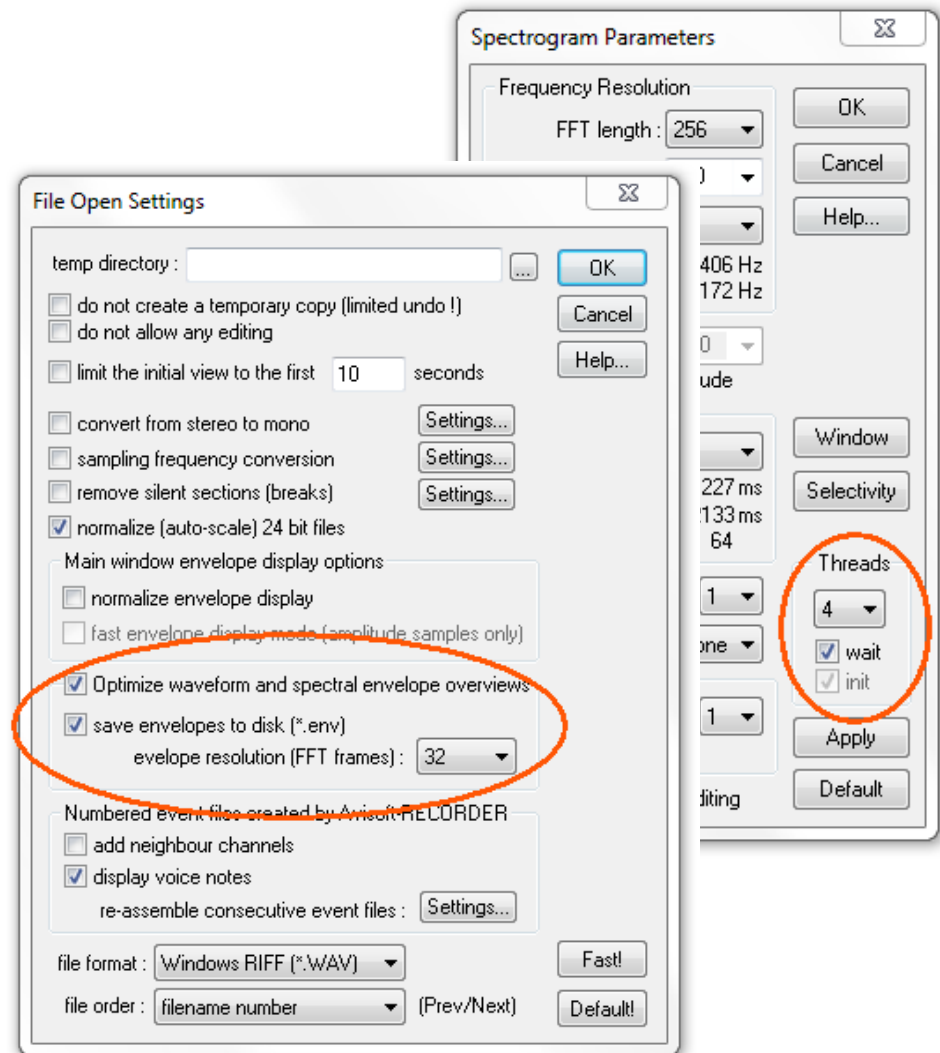
	A	B	C	D	E	F	G	H	I	J
1	#	duration	interval	peak freq(st	peak freq(	peak freq(	peak freq(	peak freq(	peak freq(meanentire)	
2	1	0,0059	-	65600	63200	63200	65600	64500		
3	2	0,0187	0,2363	65600	52700	52700	65600	59100		
4	3	0,0119	0,0384	58000	59700	58000	62600	61600		
5	4	0,0443	0,0179	56800	50300	48000	56800	53900		
6	5	0,0546	0,1732	67900		52100	97200	71500		
7	6	0,0486	0,192	67300	97800	57400	102500	85100		
8	7	0,017	0,2491	108300		86700	108300	96700		
9	8	0,0068	0,075	63200	60300	60300	64400	63200		
10	9	0,0042	0,0315	99600	106000	99600	106000	102800		
11	10	0,0298	0,128	66700	52700	52700	66700	62800		
12	11	0,0298	0,0366	96000	89600	89000	96000	91200		
13	12	0,0776	0,1493	68500	89600	45700	102500	74600		
14	13	0,0042	0,1262			147000	147000	147000		
15	14	0,0221	0,0187	62600	59100	58500	62600	59500		
16	15	0,0358	0,1962	57400		45700	57400	49800		
17	16	0,0145	0,1732	76700	73200	73200	77300	76000		

# Avisoft-SASLab Pro additional features

- Editing, Filtering
- Preparing playback files including (re-) synthesis
- Batch processing
- Versatile metadata management (entering labels, text chunks, datasets with user-defined fields)
- Integrated XML metadatabase functionality
- and much more, see [www.avisoft.com](http://www.avisoft.com) for further details (and free updates)

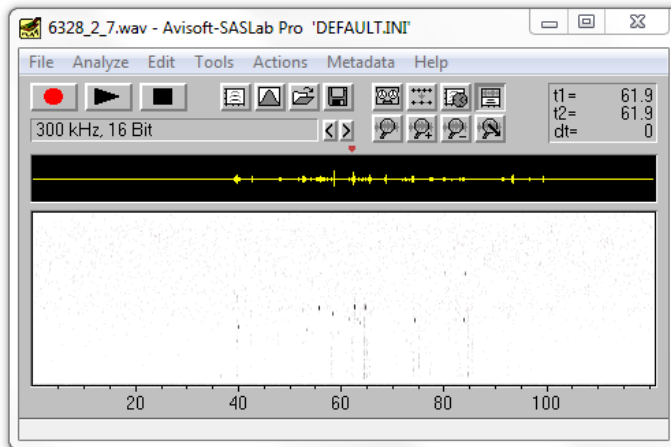
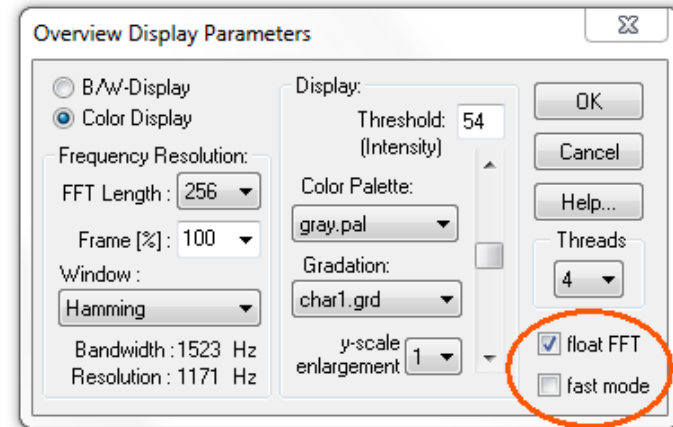
# Recent Improvements (version 5.2)

- Faster spectrogram calculation by multithreading on multicore processors
- Optional envelope sidecar files can now significantly accelerate opening large sound files (these .env sidecar files can also be created in a batch process in advance)

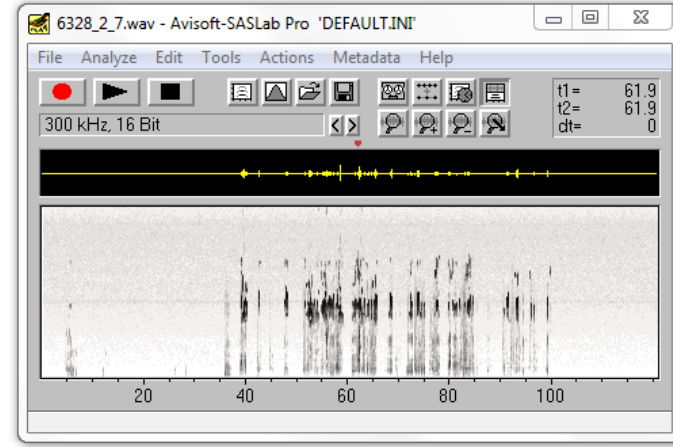


# Recent Improvements (version 5.2)

- The new spectrogram envelope functionality on the main window provides an improved and more detailed overview display of large soundfiles (short calls will no longer be hidden)



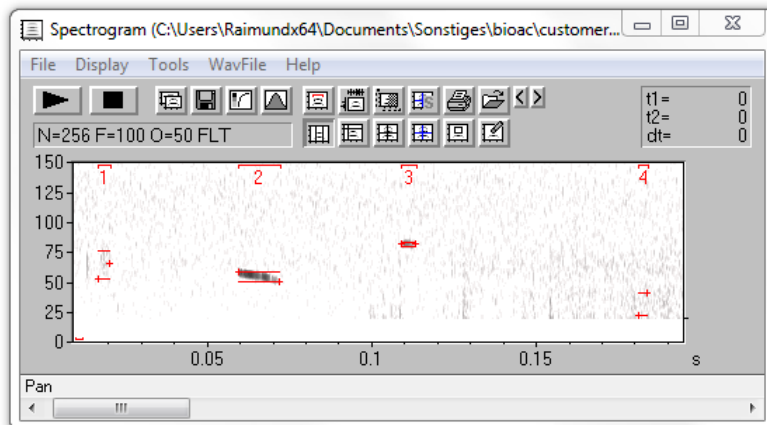
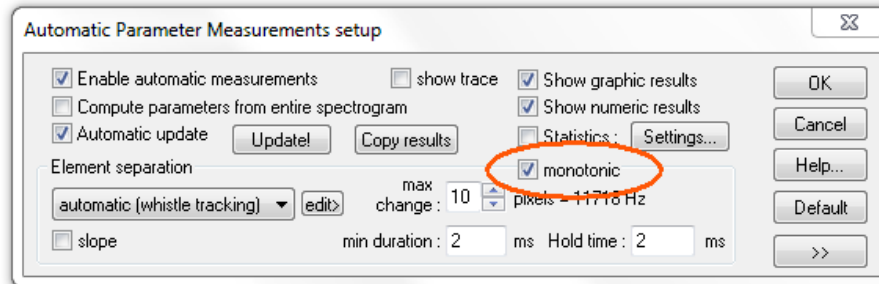
until recently



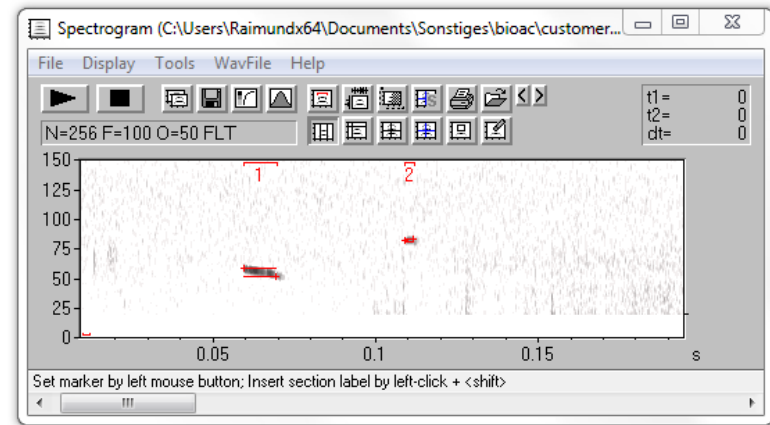
new envelope display mode

# Recent Improvements (version 5.2)

- The further improved Whistle Tracking algorithm can better detect short and rapidly frequency-modulated vocalizations while maintaining its (potential) ability of rejecting bedding noise (the „min duration“ setting can now be further reduced and the „max change“ setting can be further increased than before)



until recently

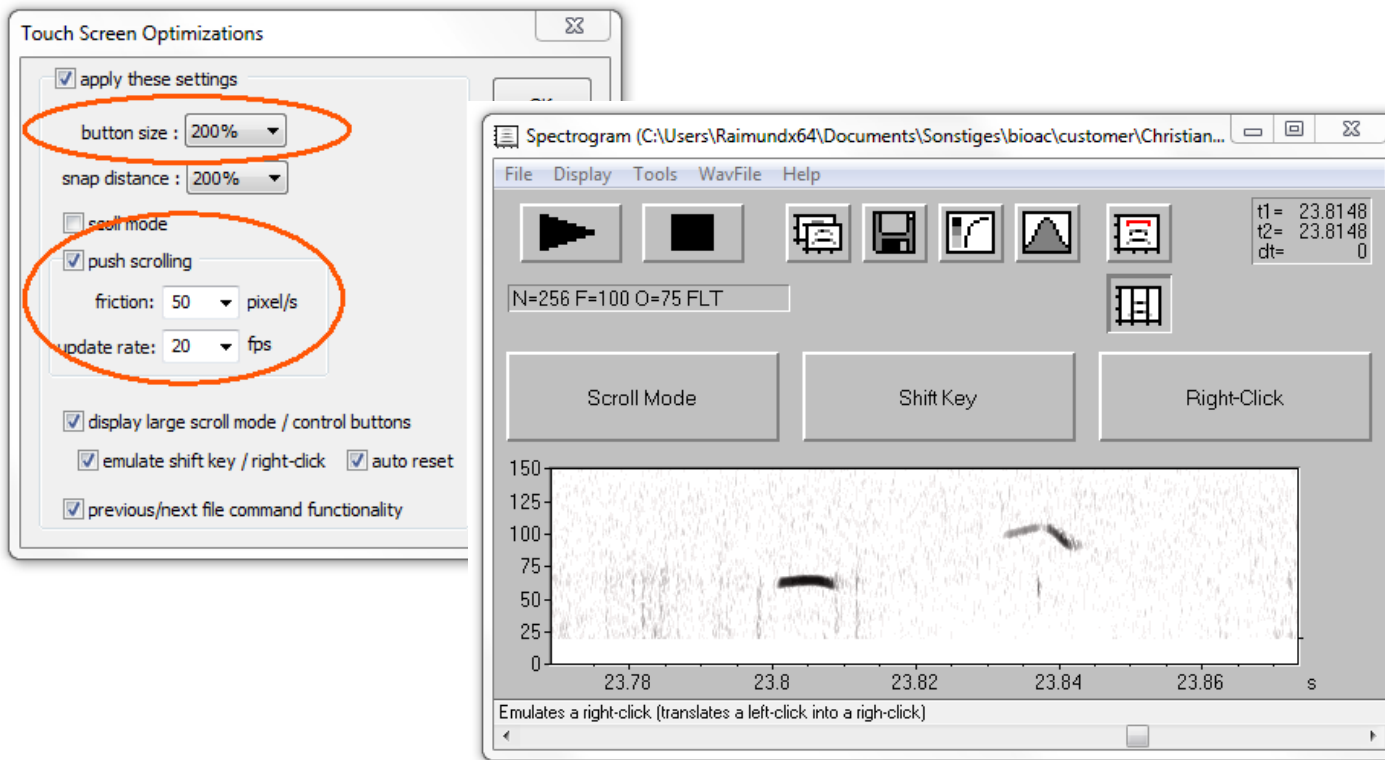


with the new **monotonic** option activated



# Recent Improvements (version 5.2)

- Touch Screen GUI optimizations for improved usability on tablet PC's (larger buttons, smooth push scrolling, shift key and right-click emulation)



... this can perhaps enable USV processing on the couch or in bed ;-)

