

From Noldus File to Visualisation part 5 : Phase Analysis with Biodare

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1. INSTRUCTIONS

This is a follow up from From Noldus File to Visualisation part 4 : wakefish

For this example I used the DDopn4xa experiments. It includes 3 independent experiments : PSDD1opn4xa, PSDD2opn4xa and PSDD3opn4xa, that I trimed so they all start at 23:30:00).

2. STEP BY STEP EXAMPLE

1-9. See steps 1 to 9 from part 4

10. Phases analysis : for phases calculation, I use the default Expected periods, for Input Data I select baseline dtr and for Analysis Method I use the FFT-NLLS . For calculating the phase before the pulse, I use the Data window from 0.5 to 39.5 (corresponding to 9am/CT0 to midnight/CT15 of the following day in my data), and for the phase after the pulse the window is from 48.5 to 87.5 (corresponding to 9am/CT0 to midnight/CT15 of the following day in my data).

The screenshot shows the Biodare2 web interface for experiment 20614 (DDopn4xa). The 'Start period analysis' section is active, showing the following configuration:

- Experiment:** 20614 DDopn4xa
- Purpose:** test period and phase of wild type and mutant larvae kept in constant darkness for 4 days
- Authors:** Elise Cau,
- Data category:** Behaviour (e.g. wheel running)

The configuration options for the analysis are:

- Data window:** from: 0.5 to: 39.5 (highlighted with a red circle)
- Input Data:** baseline dtr
- Expected periods:** from: 18 to: 34
- Analysis Method:** FFT NLLS

The 'Analyse' button is located at the bottom left of the configuration section. The bottom of the screen shows a Windows taskbar with the date 10/11/2021 and time 12:33.

11-13. See septs 11 to 13 from part 4

14. Keep the Abs Phase to Window data

DDopn4xa_FFT - Excel

J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Data Label	Status	Period	Period Err	Abs Phase	Tc Abs Phase Err			DDopn4xa_wt_deb_FFT	DDopn4xa_mut_deb_FFT	DDopn4xa_wt_end_FFT	DDopn4xa_mut_end_FFT	DDopn4xa_wt_diff_FFT			
2	DD1ctrl		32.07	15.17	6.34	40.18			6.86	4.08	6.34	7.21				
3	DD1ctrl	ATTENTION	0.91	0.01	0.24	0.58			6.46	3.25	0.24	0.33				
4	DD1ctrl		27.92	6.3	7.05	15.38			6.48	1.44	7.05	3.15				
5	DD1ctrl		22.42	4.36	11.49	14.98			2.8	4.91	11.49	7.01				
6	DD1ctrl	ATTENTION	0.65	0.0	0.44	0.41			4.51	1.35	0.44	6.76				
7	DD1ctrl		29.92	11.05	3.58	34.26			5.92	7.08	3.58	6.47				
8	DD1ctrl		23.58	4.06	6.52	12.53			5.91	3.22	6.52	5.71				
9	DD1ctrl	ATTENTION	2.64	0.08	2.53	2.0			7.9	5.48	2.53	2.6				
10	DD1ctrl		24.59	3.5	6.45	9.09			0.9	4.52	6.45	6.61				
11	DD1ctrl	ATTENTION	1.45	0.02	1.27	0.69			3.43	1.93	1.27	5.63				
12	DD1ctrl	ATTENTION	1.06	0.01	0.39	0.64			0.68	3.24	0.39	2.12				
13	DD1ctrl		24.78	3.33	7.69	8.34			4.73	5.68	7.69	6.3				
14	DD1ctrl		28.34	7.06	1.19	19.46			1.35	4.08	1.19	8.59				
15	DD1ctrl		24.75	3.69	7.05	9.55			6.18	6.11	7.05	1.64				
16	DD1ctrl	ATTENTION	2.39	0.04	2.18	1.09			7.34	6.22	2.18	5.19				
17	DD1ctrl		27.39	6.53	5.08	16.95			5.68	10.01	5.08	5.56				
18	DD1ctrl	ATTENTION	2.58	0.04	0.57	1.06			5.41	5.23	0.57	6.04				
19	DD1ctrl	ATTENTION	13.39	1.59	5.41	8.12			7.16	3.64	5.41	6.36				
20	DD2npg		29.07	10.17	7.05	119.4			4.37	3.85	7.05	1.8				
21	DD2npg		33.58	22.54	3.22	72.11			2.36	1.46	3.22	7.55				
22	DD2npg		26.04	8.48	4.22	22.79			0.42	5.54	4.22	0.09				
23	DD2npg	ATTENTION	0.37	0.0	0.15	0.42			7.48	5.34	0.15	0.45				
24	DD2npg	ATTENTION	1.42	0.03	0.77	1.64			6.8	5.19	0.77	9.03				
25	DD2npg	ATTENTION	0.85	0.01	0.42	0.97			5.04	5.64	0.42	6.35				
26	DD2npg		25.43	5.8	6.77	14.73			3.22	0.73	6.77	0.52				
27	DD2npg		27.11	8.6	5.76	21.89			1.84	2.16	5.76	7.77				
28	DD2npg		24.31	4.06	7.11	10.39			6.13	2.41	7.11	8.38				
29	DD2npg		25.47	3.99	6.53	10.2			6.89	7.12	6.53	3.78				
30	DD2npg		23.51	3.65	7.39	11.25			7.18	4.27	7.39	6.83				
31	DD2npg		23.0	2.72	8.17	8.24			6.43	5.66	8.17	1.88				
32	DD2npg		26.77	3.06	6.79	7.62			3.23	5.47	6.79	5.58				
33	DD2npg		30.06	11.11	2.37	36.62			5.55	6.76	2.37	5.29				
34	DD2npg		23.19	2.87	8.96	7.21			5.24	1.14	8.96	6.08				
35	DD2npg		24.04	4.51	8.54	11.24			6.89	6.82	8.54	4.13				
36	DD2npg		28.21	9.74	3.3	33.4			4.64	6.13	3.3	5.75				
37	DD2npg		24.36	6.16	5.82	76.03			6.36	6.77	5.82	6.3				
38	DD2npg		35.35	7.78	7.07	104.4			6.62	7.18	7.07	8.04				

17. Remove unwanted data : to remove delta phase calculated from unwanted phases, if you have labelled your unwanted phases in red, you can (1) select and copy your before column and (2) paste it with the Mise en forme option label in red the delta phase to remove. do the same with the after column and for all the genotypes and voila !

DDopn4xa_FFT - Excel

DDopn4xa_wt_deb_FFT

J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Data Label	Status	Period	Period Err	Abs Phase	Tc Abs Phase Err			DDopn4xa_wt_deb_FFT	DDopn4xa_mut_deb_FFT	DDopn4xa_wt_end_FFT	DDopn4xa_mut_end_FFT	DDopn4xa_wt_diff_FFT			
2	DD1ctrl		32.07	15.17	6.34	40.18			6.86	4.08	6.34	7.21	-0.52			
3	DD1ctrl	ATTENTION	0.91	0.01	0.24	0.58			6.46	3.25	0.24	0.33	-6.22			
4	DD1ctrl		27.92	6.3	7.05	15.38			6.48	1.44	7.05	3.15	0.57			
5	DD1ctrl		22.42	4.36	11.49	14.98			2.8	4.91	11.49	7.01	8.69			
6	DD1ctrl	ATTENTION	0.65	0.0	0.44	0.41			4.51	1.35	0.44	6.76	-4.07			
7	DD1ctrl		29.92	11.05	3.58	34.26			5.92	7.08	3.58	6.47	-2.34			
8	DD1ctrl		23.58	4.06	6.52	12.53			5.91	3.22	6.52	5.71	0.61			
9	DD1ctrl	ATTENTION	2.64	0.08	2.53	2.0			7.9	5.48	2.53	2.6	-5.37			
10	DD1ctrl	ATTENTION	1.45	0.02	1.27	0.69			0.9	4.52	6.45	6.61	5.55			
11	DD1ctrl	ATTENTION	1.06	0.01	0.39	0.64					1.27	5.63	-2.16			
12	DD1ctrl		24.78	3.33	7.69	8.34					0.39	2.12	-0.29			
13	DD1ctrl		28.34	7.06	1.19	19.46					7.69	6.3	2.96			
14	DD1ctrl		24.75	3.69	7.05	9.55					1.19	8.59	-0.16			
15	DD1ctrl		24.75	3.69	7.05	9.55					7.05	1.64	0.87			
16	DD1ctrl	ATTENTION	2.39	0.04	2.18	1.09					2.18	5.19	-5.16			
17	DD1ctrl		27.39	6.53	5.08	16.95					5.08	5.56	-0.6			
18	DD1ctrl	ATTENTION	2.58	0.04	0.57	1.06					0.57	6.04	-4.84			
19	DD1ctrl	ATTENTION	13.39	1.59	5.41	8.12					5.41	6.36	-1.75			
20	DD2npg		29.07	10.17	7.05	119.4					7.05	1.8	2.68			
21	DD2npg		33.58	22.54	3.22	72.11			2.36	1.46	3.22	7.55	0.86			
22	DD2npg		26.04	8.48	4.22	22.79			0.42	5.54	4.22	0.09	3.8			
23	DD2npg	ATTENTION	0.37	0.0	0.15	0.42					0.15	0.45	-7.33			
24	DD2npg	ATTENTION	1.42	0.03	0.77	1.64					0.77	9.03	-6.03			
25	DD2npg	ATTENTION	0.85	0.01	0.42	0.97					0.42	6.35	-4.62			
26	DD2npg		25.43	5.8	6.77	14.73					6.77	0.52	3.55			
27	DD2npg		27.11	8.6	5.76	21.89					5.76	7.77	3.92			
28	DD2npg		24.31	4.06	7.11	10.39					7.11	8.38	0.98			
29	DD2npg		25.47	3.99	6.53	10.2					6.53	3.78	-0.36			
30	DD2npg		23.51	3.65	7.39	11.25					7.39	6.83	0.21			
31	DD2npg		23.0	2.72	8.17	8.24					8.17	1.88	1.74			
32	DD2npg		26.77	3.06	6.79	7.62					6.79	5.58	3.56			
33	DD2npg		30.06	11.11	2.37	36.62					2.37	5.29	-3.18			
34	DD2npg		23.19	2.87	8.96	7.21					8.96	6.08	3.72			
35	DD2npg		24.04	4.51	8.54	11.24					8.54	4.13	1.65			
36	DD2npg		28.21	9.74	3.3	33.4					3.3	5.75	-1.34			
37	DD2npg		24.36	6.16	5.82	76.03					5.82	6.3	-0.54			
38	DD2npg		35.35	7.78	7.07	104.4					7.07	8.04	1.34			

Microsoft Excel

Cette action est terminée, 260 remplacements ont été effectués.

18. Statistics : see part 4