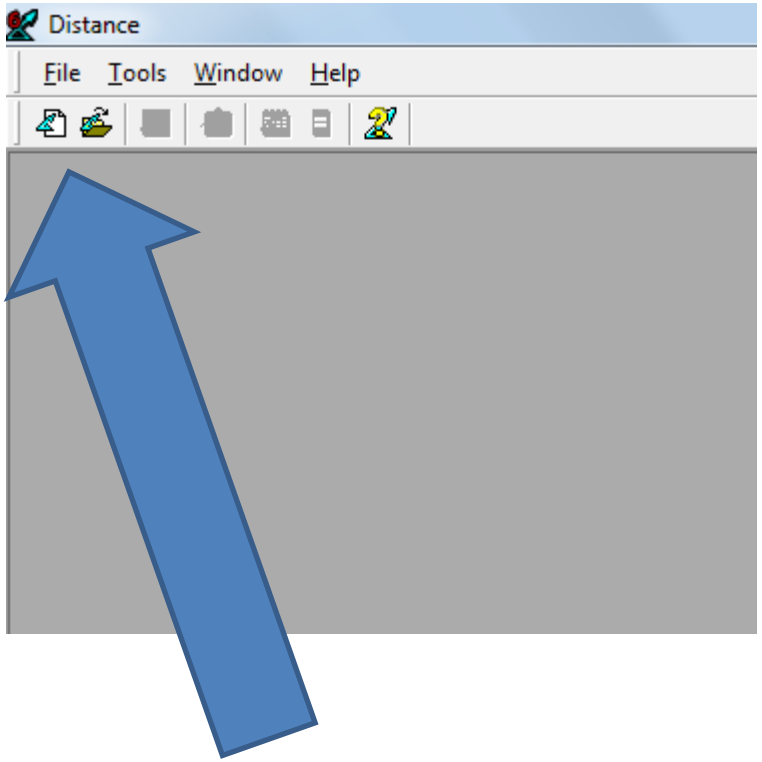
Roteiro Distance

Leonardo Wedekin

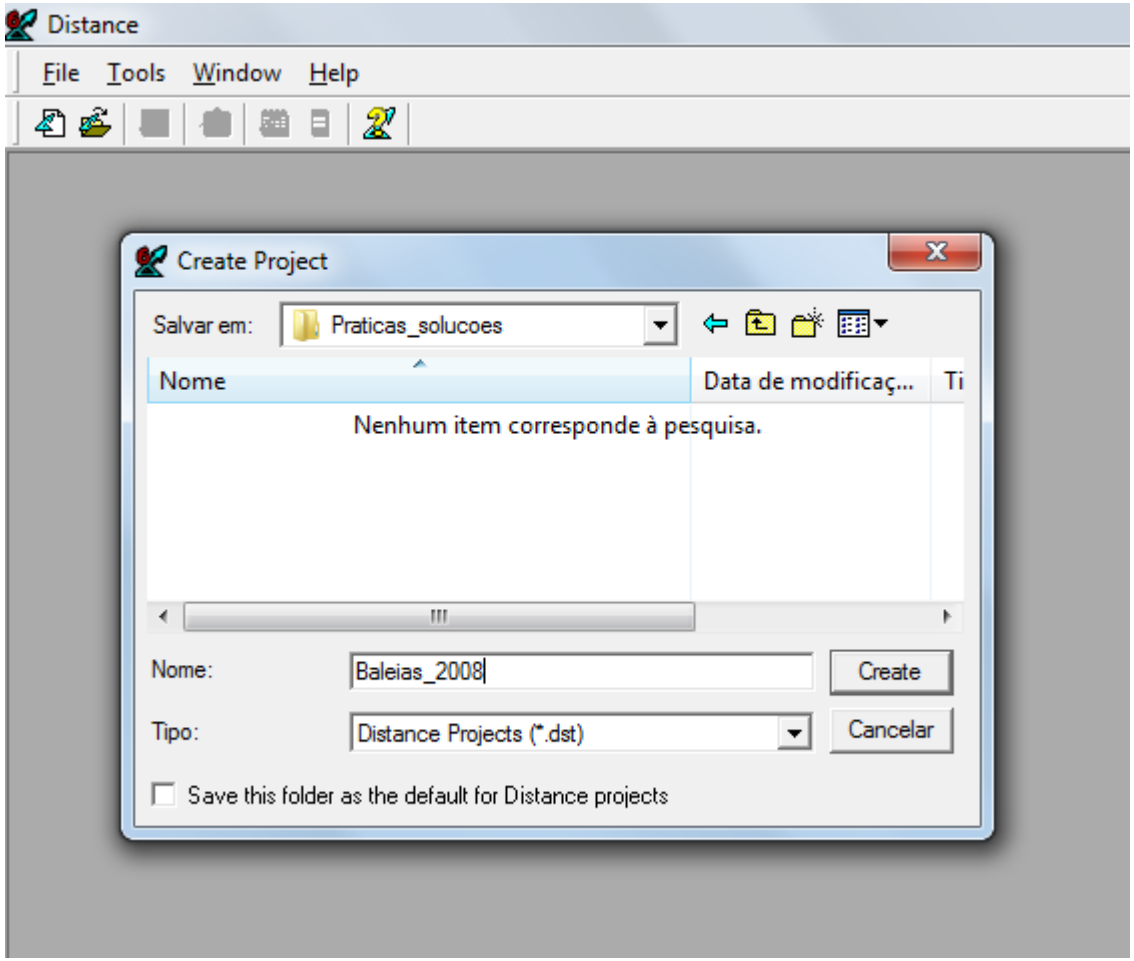
USP - 2013

Abra o Distance

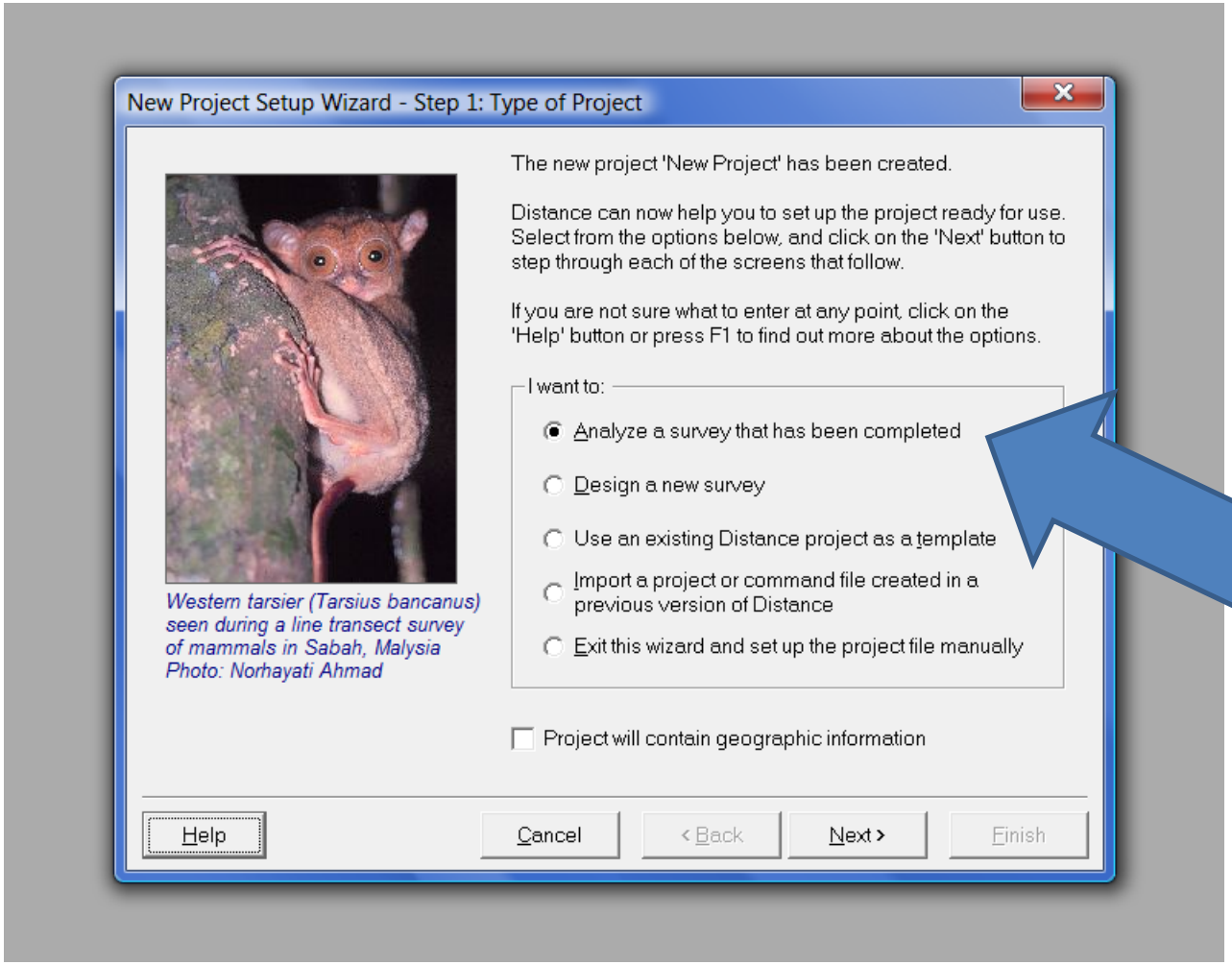


Crie um novo projeto clicando no primeiro botão

Dê um nome

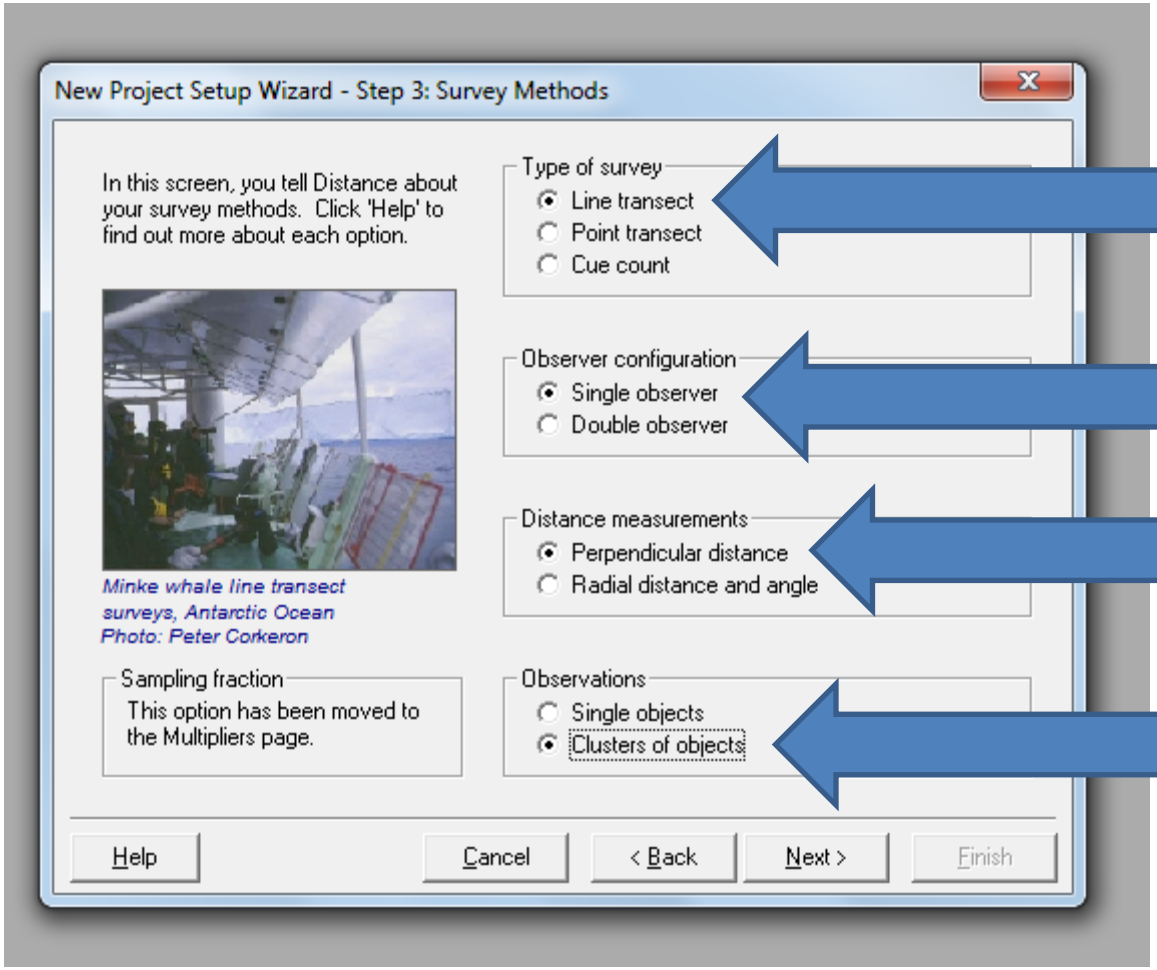

Distance
File Tools Window Help
Create Project
Salvar em: Praticas_solucoes
Nome
Data de modificaç...
Ti
Nenhum item corresponde à pesquisa.
Nome: Baleias_2008
Create
Tipo: Distance Projects (*.dst)
Cancelar
Save this folder as the default for Distance projects

Leia o tutorial inicial



Queremos analisar um levantamento já realizado

Defina as características do estudo



Transecção em linha

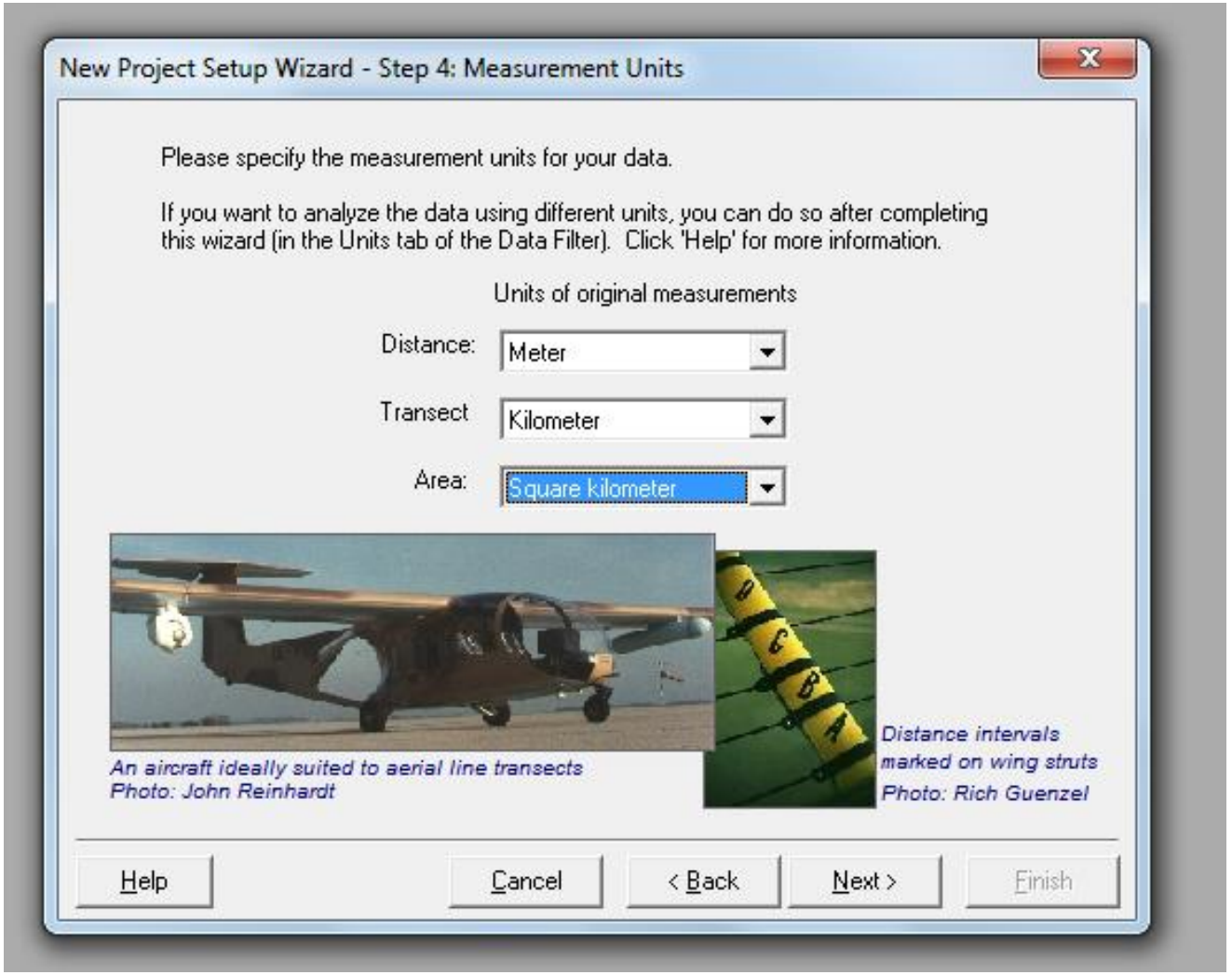
Um observador***

Distância perpendicular

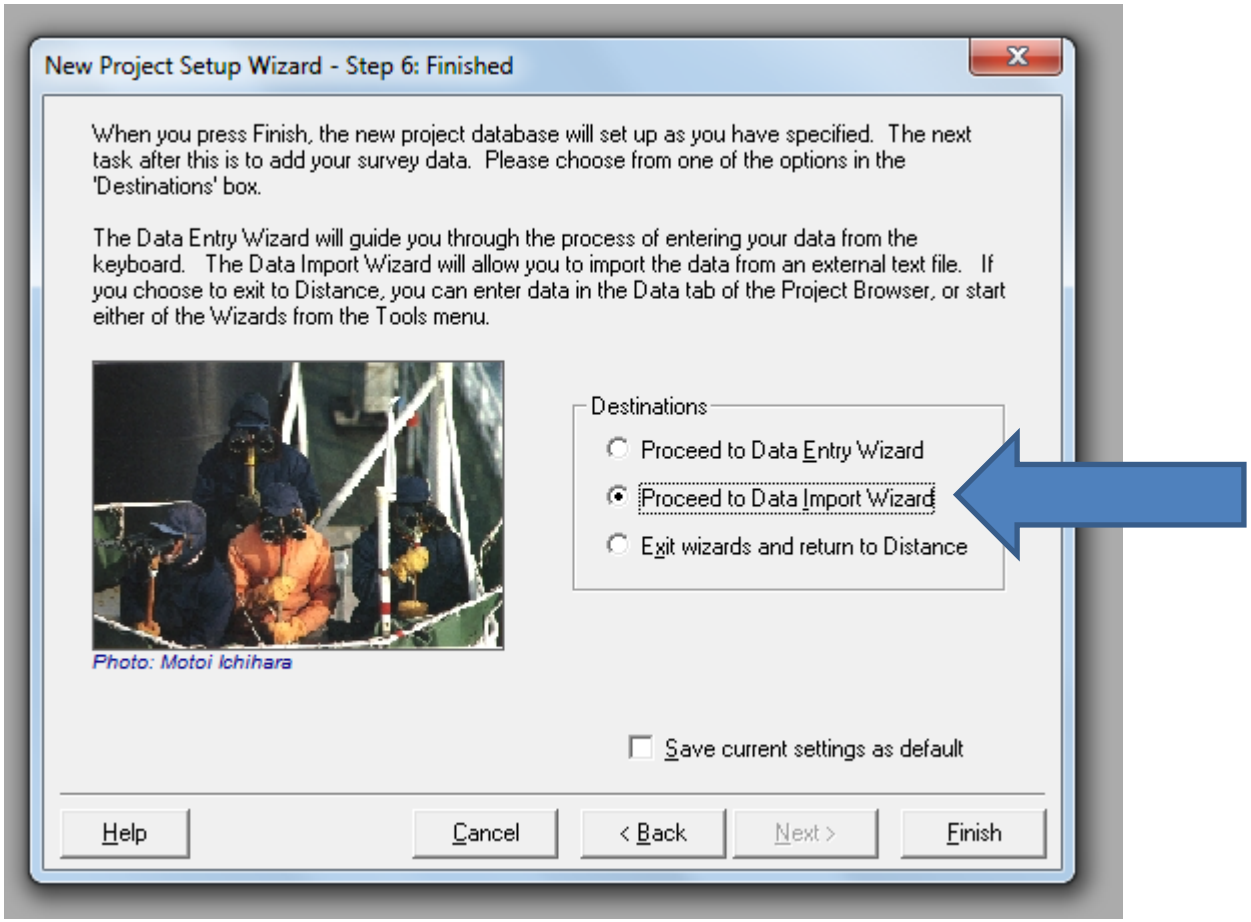
Objeto de estudo em grupos

*** A outra opção (“Double observer”) refere-se a observadores independentes e não ao número de observadores

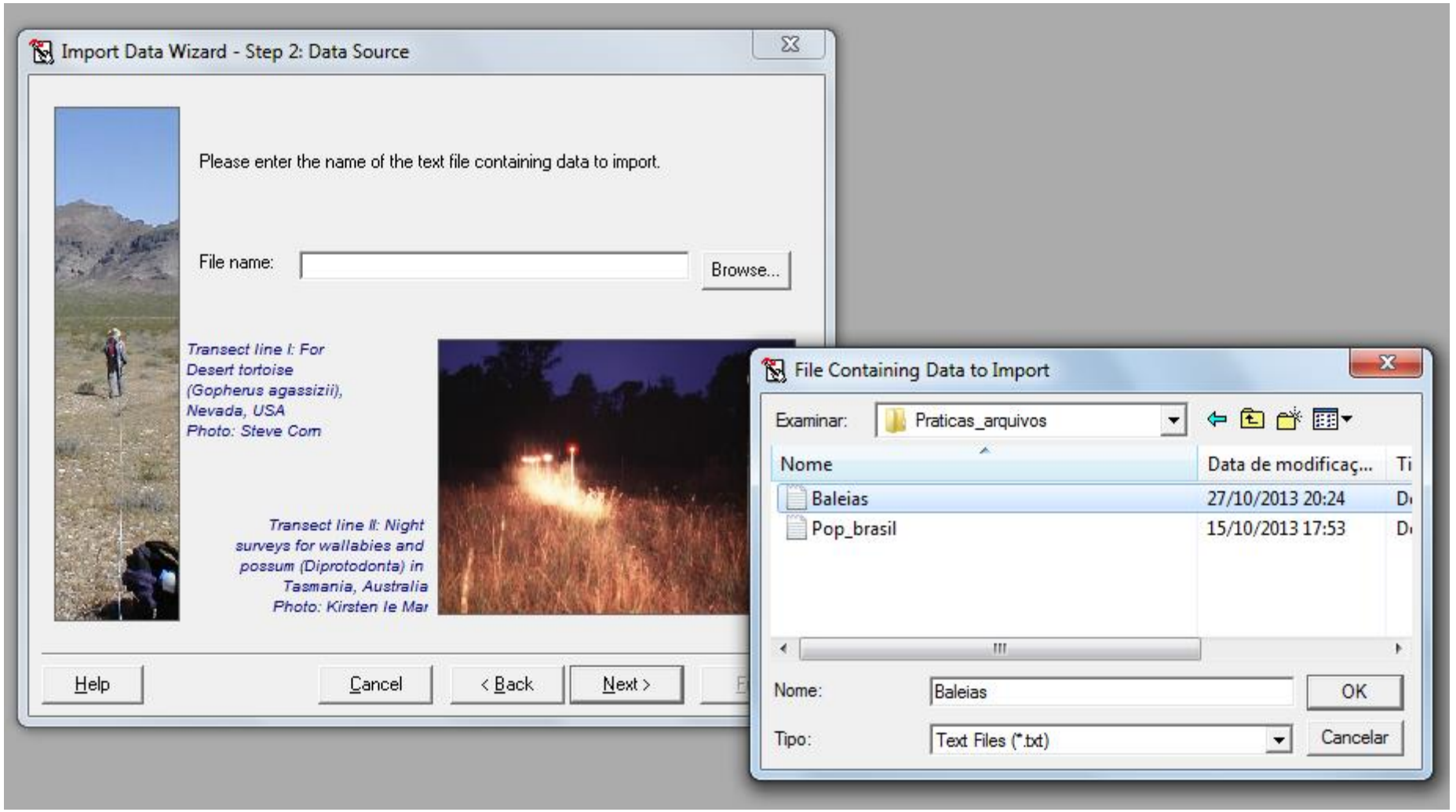
Defina as unidades utilizadas



Vamos importar uma tabelas de dados



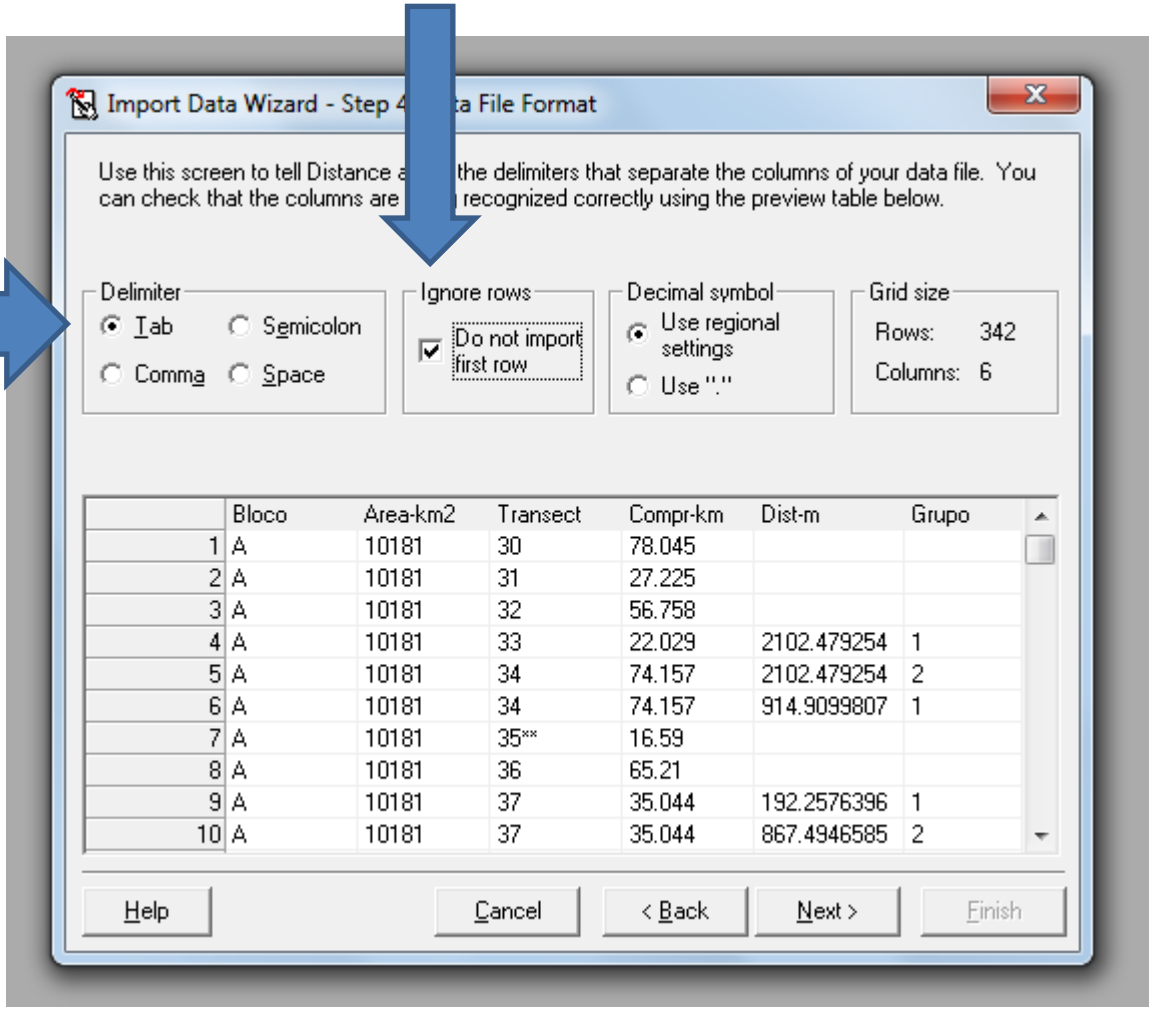
Escolha o arquivo



Configure a tabela

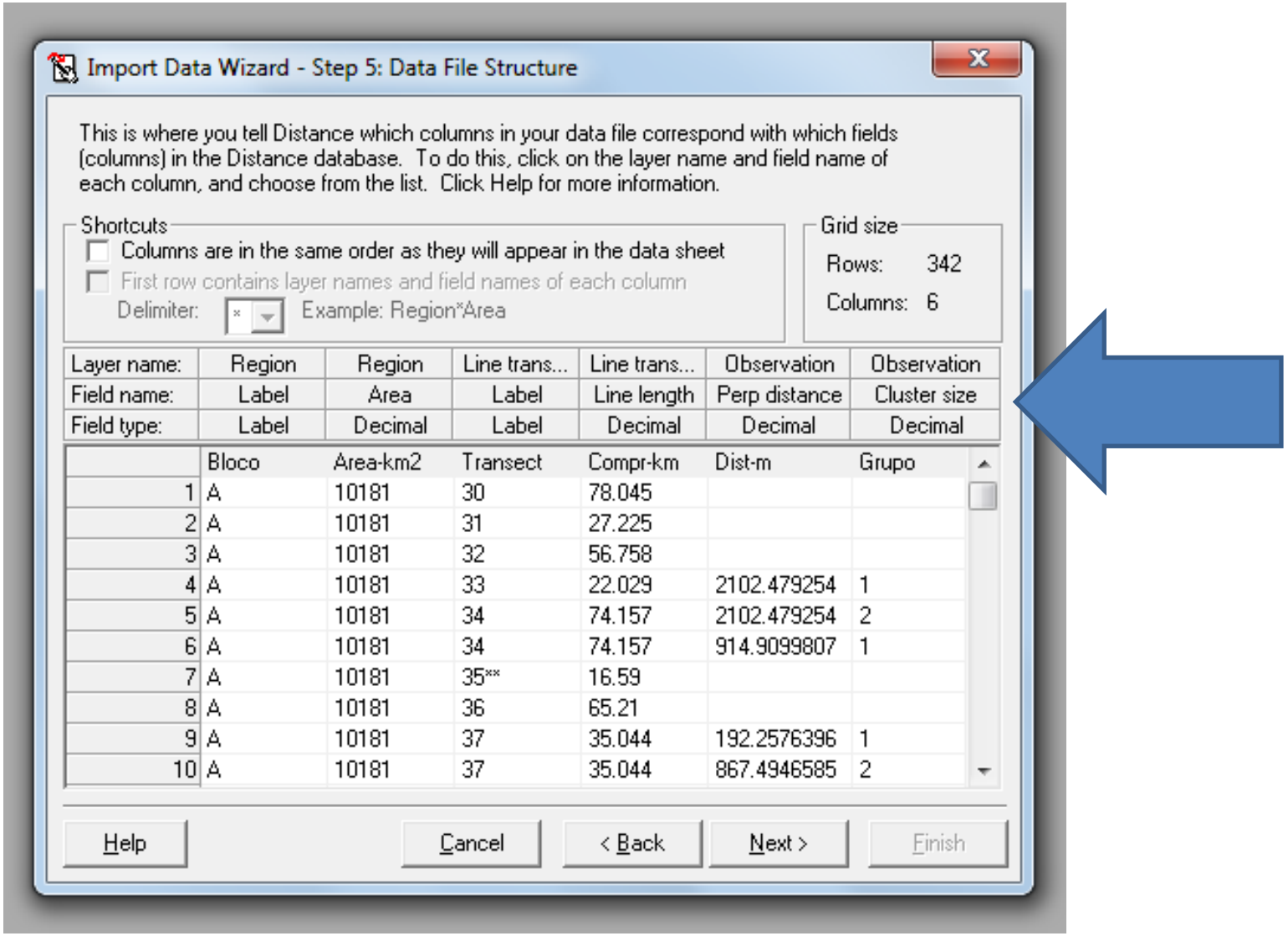
Primeira linha é cabeçalho

Separador de colunas

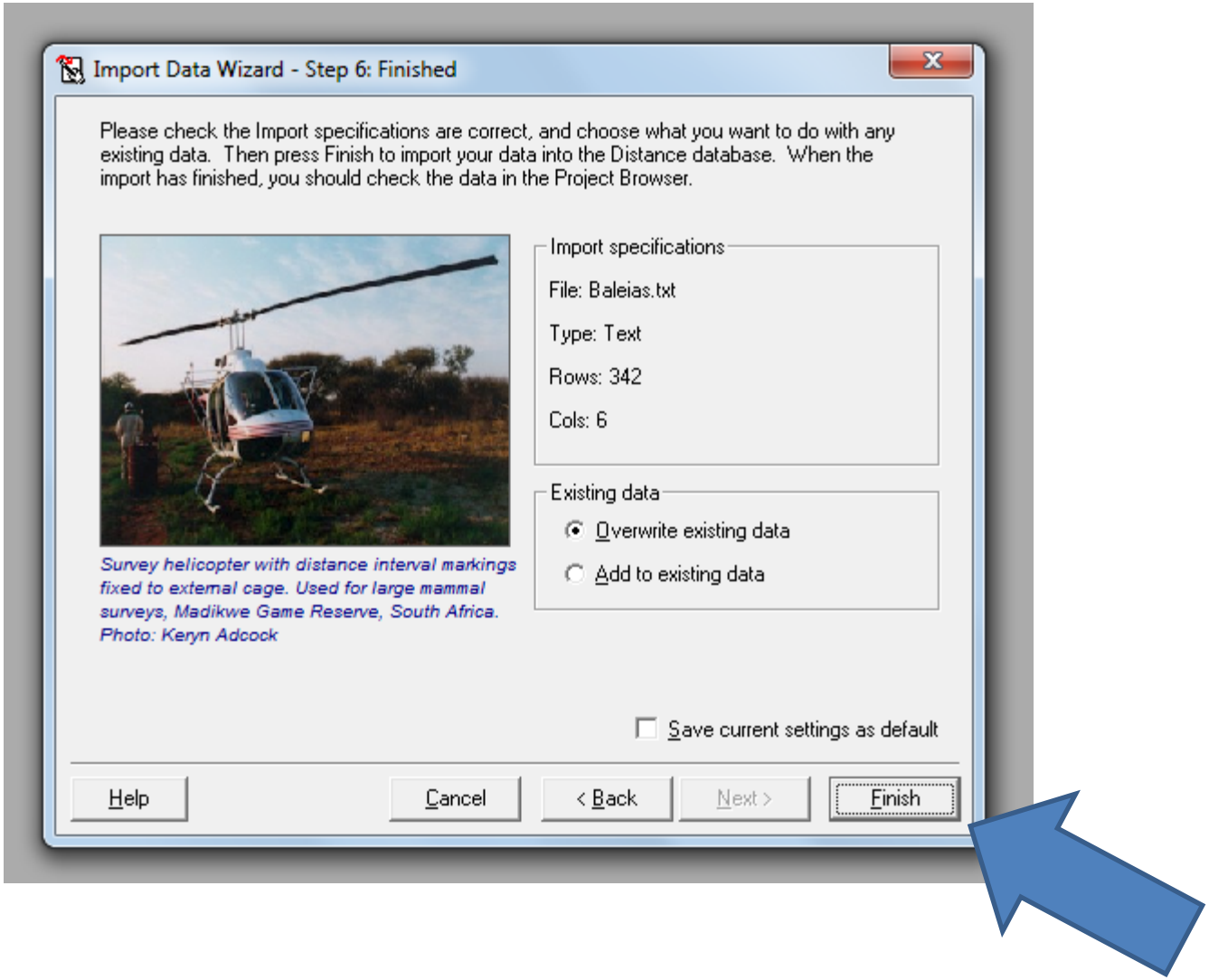


	Bloco	Area-km2	Transect	Compr-km	Dist-m	Grupo
1	A	10181	30	78.045		
2	A	10181	31	27.225		
3	A	10181	32	56.758		
4	A	10181	33	22.029	2102.479254	1
5	A	10181	34	74.157	2102.479254	2
6	A	10181	34	74.157	914.9099807	1
7	A	10181	35**	16.59		
8	A	10181	36	65.21		
9	A	10181	37	35.044	192.2576396	1
10	A	10181	37	35.044	867.4946585	2

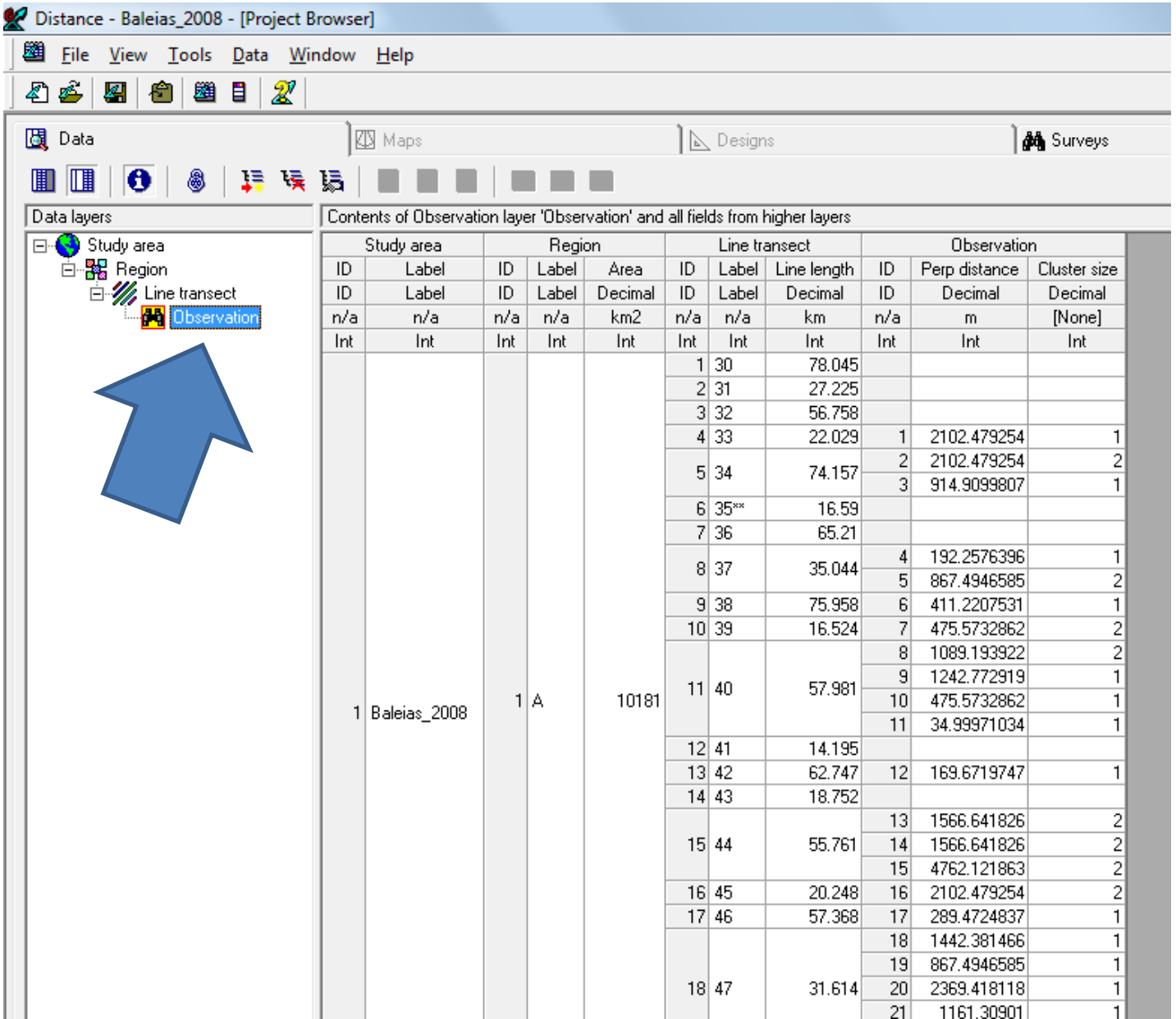
Defina o que cada coluna significa



Finish

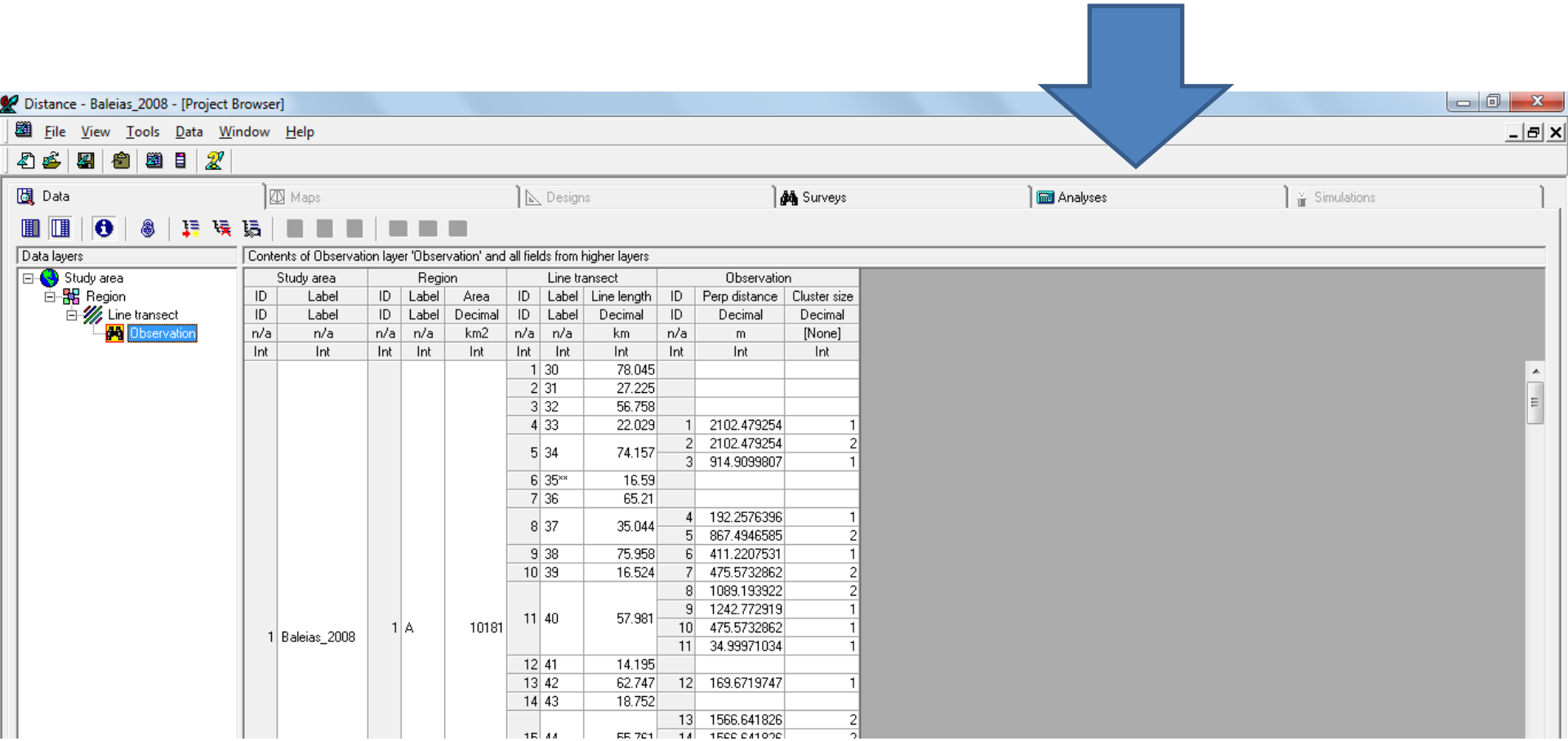

Import Data Wizard - Step 6: Finished
Please check the Import specifications are correct, and choose what you want to do with any existing data. Then press Finish to import your data into the Distance database. When the import has finished, you should check the data in the Project Browser.
Survey helicopter with distance interval markings fixed to external cage. Used for large mammal surveys, Madikwe Game Reserve, South Africa. Photo: Keryn Adcock
Import specifications
File: Baleias.txt
Type: Text
Rows: 342
Cols: 6
Existing data
Overwrite existing data
Add to existing data
Save current settings as default
Help
Cancel
< Back
Next >
Finish

Confira os dados



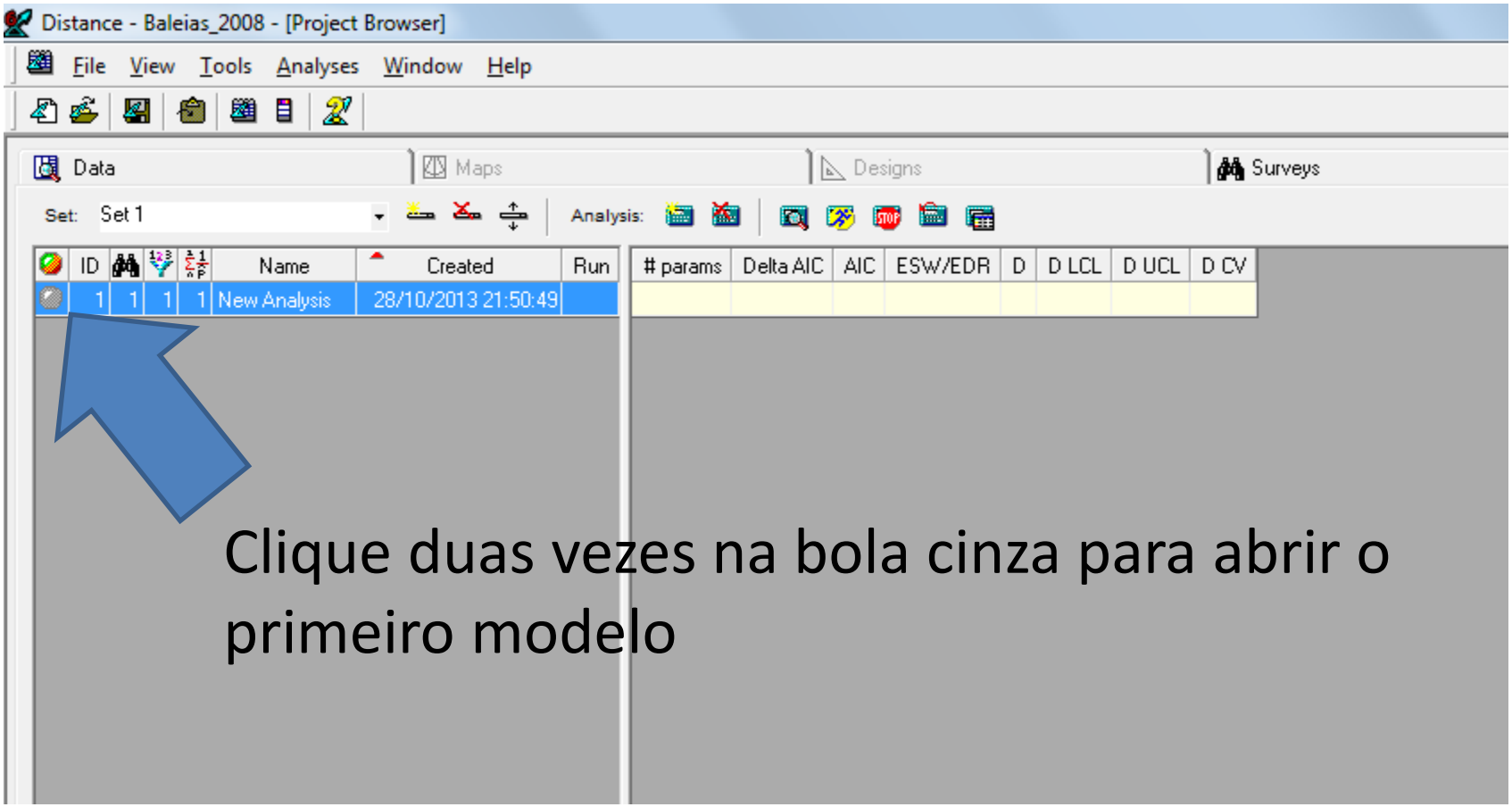
Study area		Region			Line transect			Observation		
ID	Label	ID	Label	Area	ID	Label	Line length	ID	Perp distance	Cluster size
ID	Label	ID	Label	Decimal	ID	Label	Decimal	ID	Decimal	Decimal
n/a	n/a	n/a	n/a	km2	n/a	n/a	km	n/a	m	[None]
Int	Int	Int	Int	Int	Int	Int	Int	Int	Int	Int
1	Baleias_2008	1	A	10181	1	30	78.045			
					2	31	27.225			
					3	32	56.758			
					4	33	22.029	1	2102.479254	1
					5	34	74.157	2	2102.479254	2
								3	914.9099807	1
					6	35**	16.59			
					7	36	65.21			
					8	37	35.044	4	192.2576396	1
								5	867.4946585	2
					9	38	75.958	6	411.2207531	1
					10	39	16.524	7	475.5732862	2
					11	40	57.981	8	1089.193922	2
								9	1242.772919	1
								10	475.5732862	1
								11	34.99971034	1
					12	41	14.195			
					13	42	62.747	12	169.6719747	1
					14	43	18.752			
					15	44	55.761	13	1566.641826	2
								14	1566.641826	2
								15	4762.121863	2
					16	45	20.248	16	2102.479254	2
					17	46	57.368	17	289.4724837	1
					18	47	31.614	18	1442.381466	1
								19	867.4946585	1
								20	2369.418118	1
								21	1161.30901	1

Vamos analisar



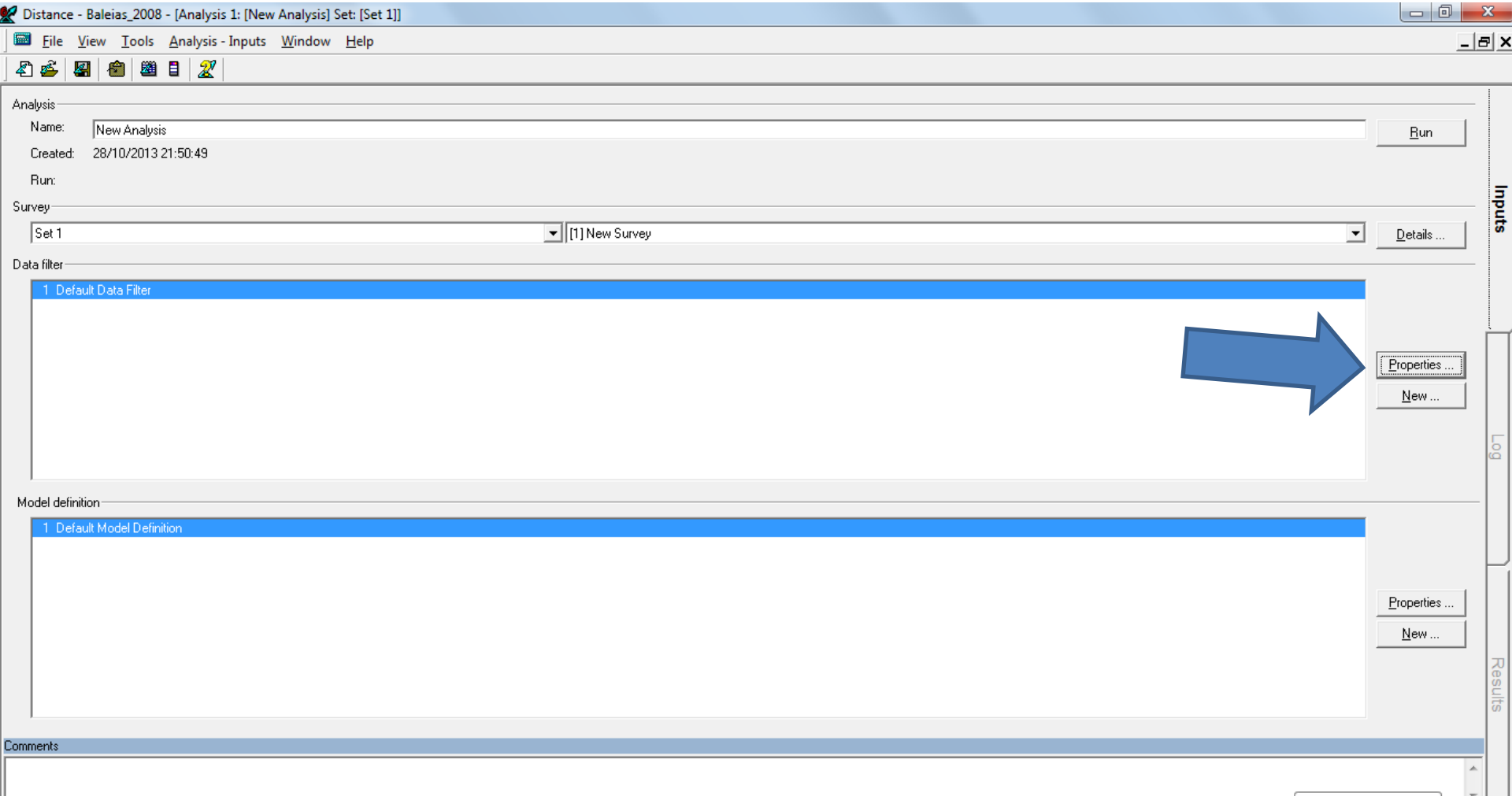
Study area		Region			Line transect			Observation		
ID	Label	ID	Label	Area	ID	Label	Line length	ID	Perp distance	Cluster size
ID	Label	ID	Label	Decimal	ID	Label	Decimal	ID	Decimal	Decimal
n/a	n/a	n/a	n/a	km2	n/a	n/a	km	n/a	m	[None]
Int	Int	Int	Int	Int	Int	Int	Int	Int	Int	Int
1	Baleias_2008	1	A	10181	1	30	78.045			
					2	31	27.225			
					3	32	56.758			
					4	33	22.029	1	2102.479254	1
					5	34	74.157	2	2102.479254	2
								3	914.9099807	1
					6	35**	16.59			
					7	36	65.21			
					8	37	35.044	4	192.2576396	1
								5	867.4946585	2
					9	38	75.958	6	411.2207531	1
					10	39	16.524	7	475.5732862	2
					11	40	57.981	8	1089.193922	2
								9	1242.772919	1
								10	475.5732862	1
								11	34.99971034	1
					12	41	14.195			
					13	42	62.747	12	169.6719747	1
					14	43	18.752			
					15	44	55.761	13	1566.641826	2

Tabela de modelos

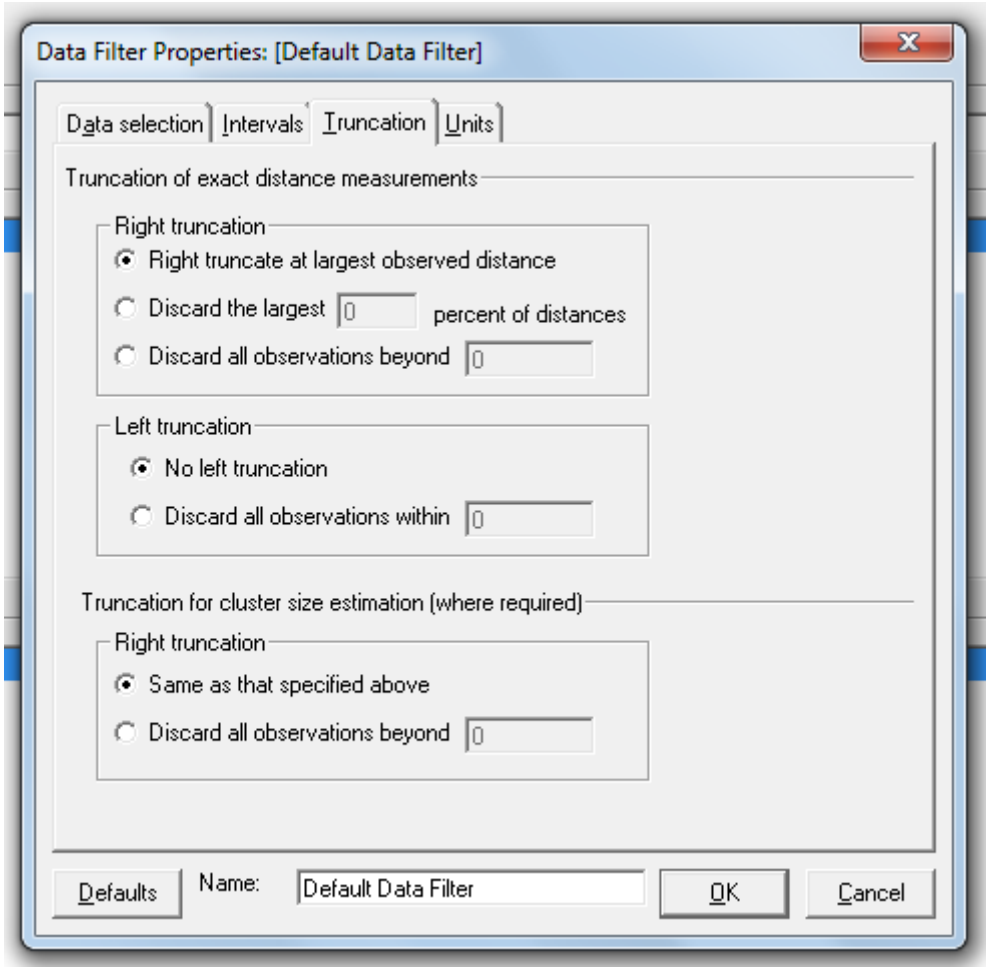


Clique duas vezes na bola cinza para abrir o primeiro modelo

Definir o filtro de dados



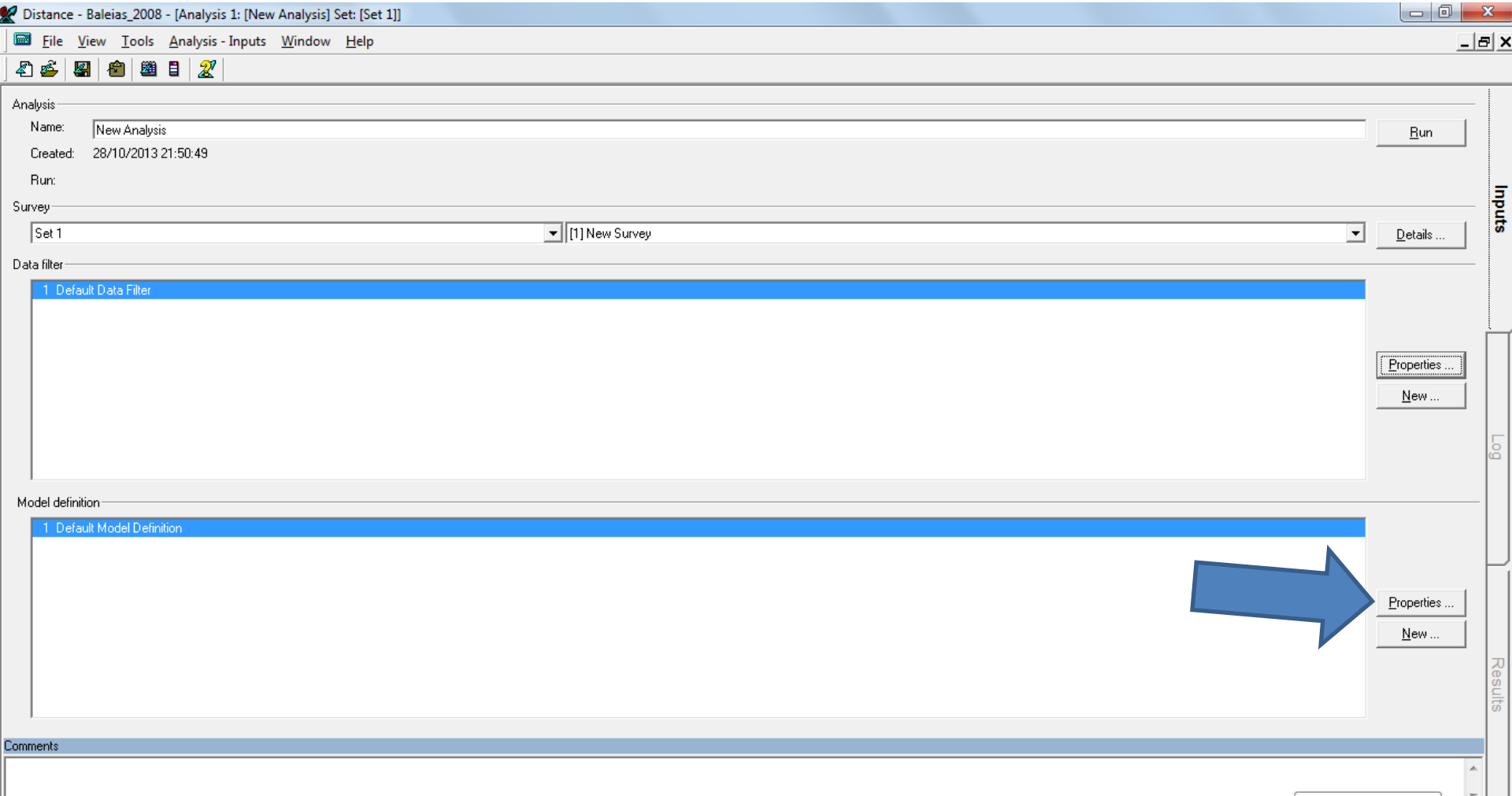
Filtro dos dados



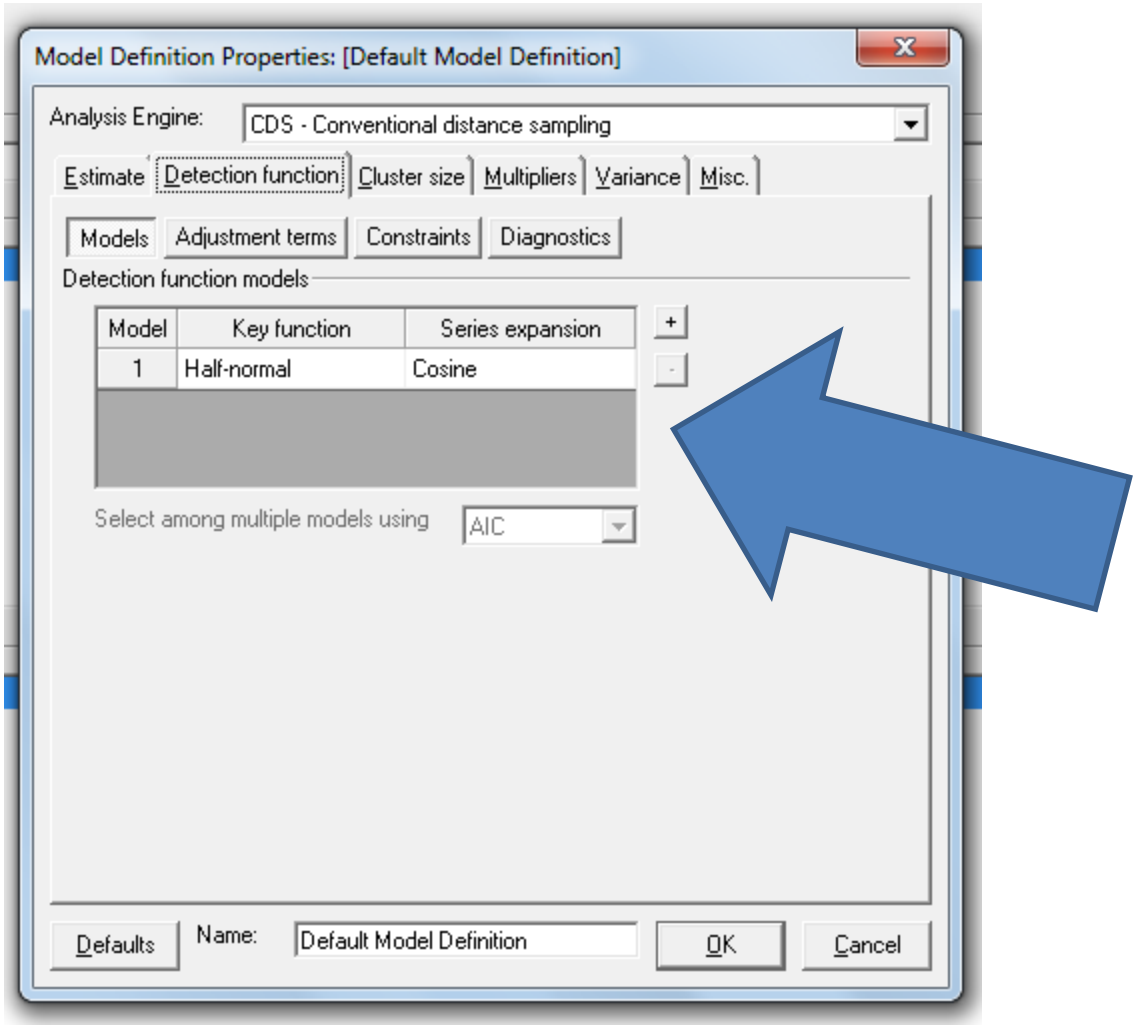
Aqui você poderá:

- Truncar os dados à direita e/ou à esquerda
- Truncar pelo tamanho de grupo
- Dividir as distâncias em intervalos (dados agrupados)
- Manter as distâncias como foram coletadas (não agrupadas)

Definição do modelo



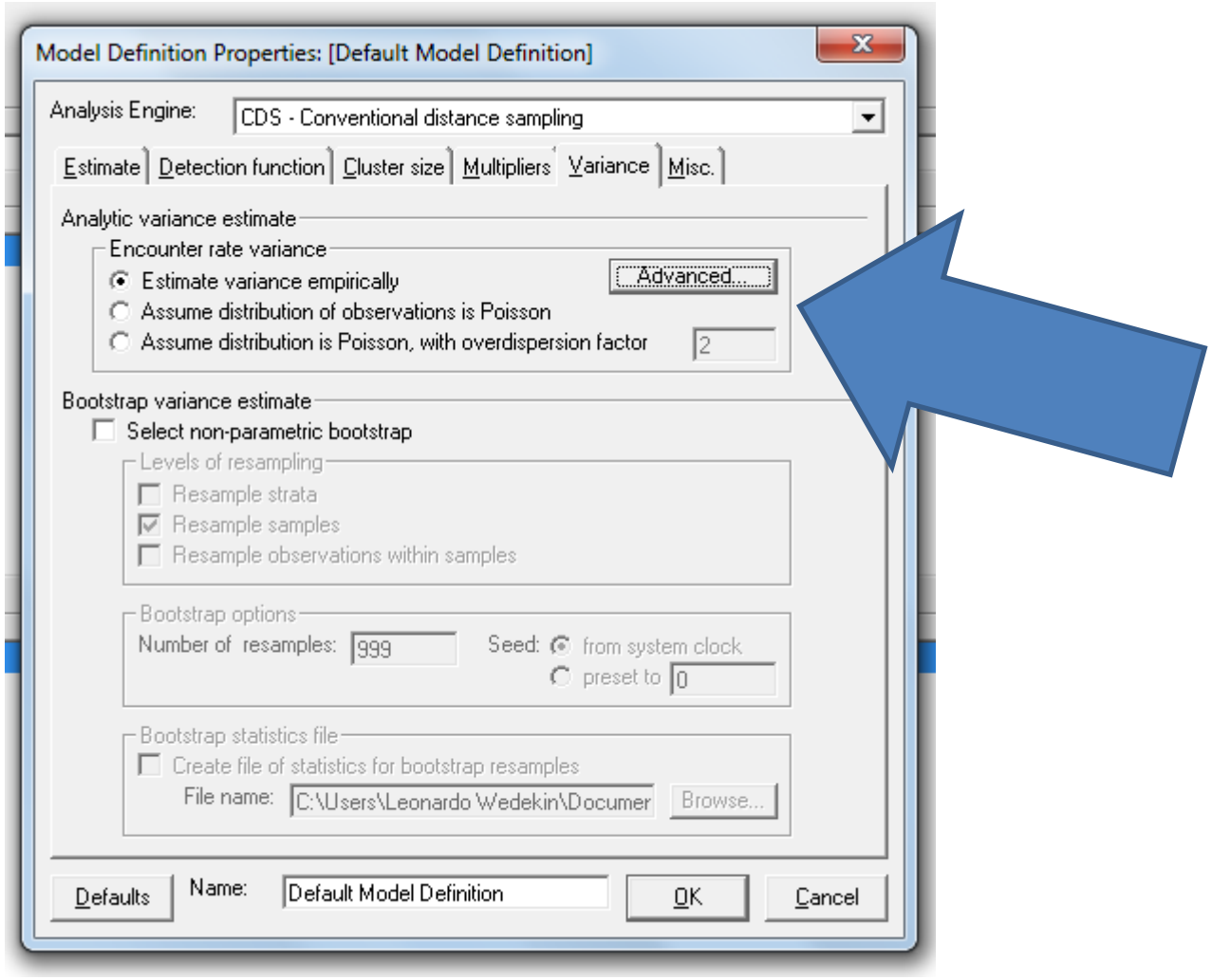
Defina as funções de detecção



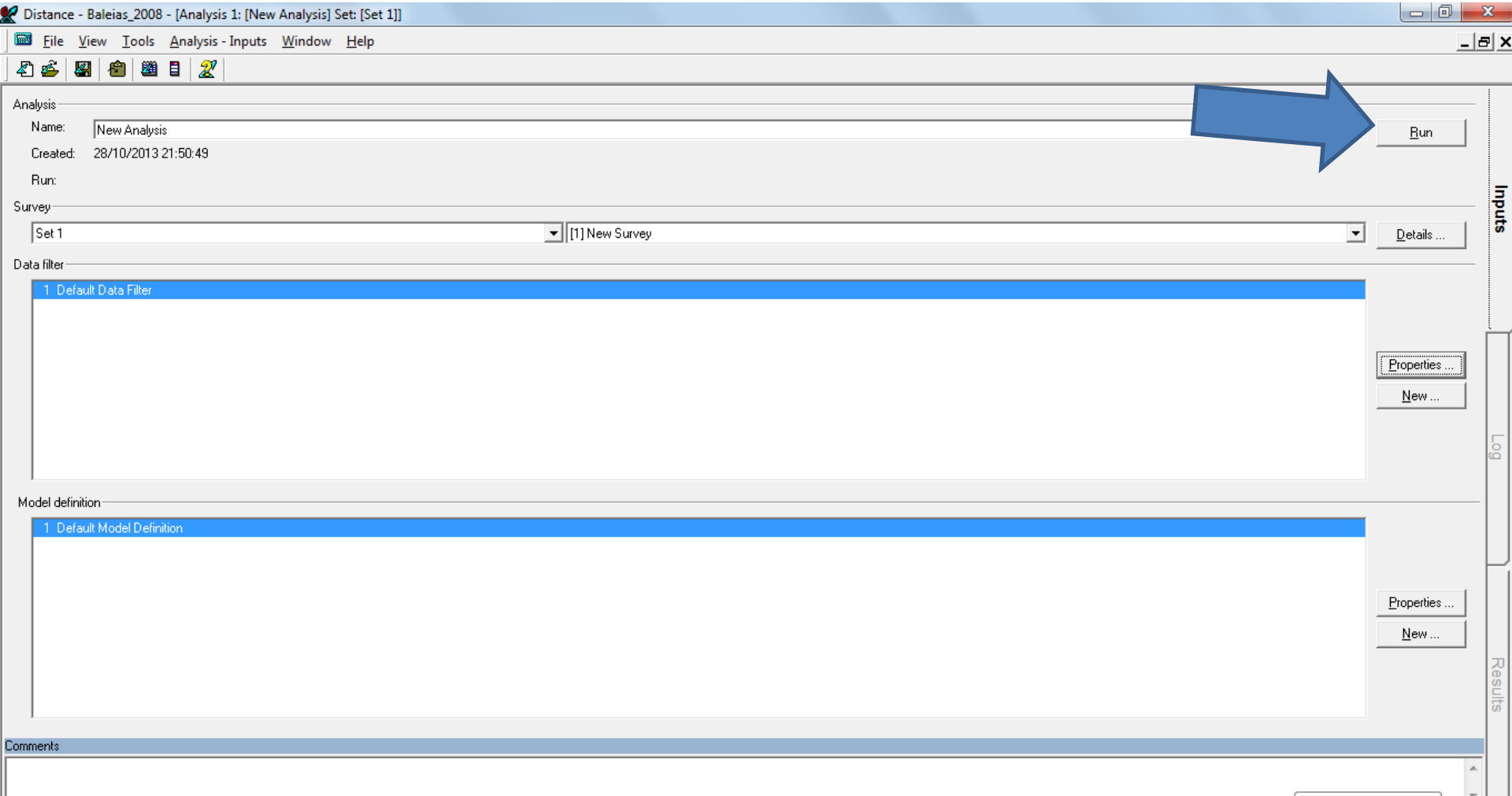
Possíveis funções de detecção

Função de detecção		**Expansão de série**
Uniforme		Cosseno
Uniforme		Polinomial simples
Meia-normal		Cosseno
Meia-normal		Polinomial hermite
Taxa de risco		Cosseno
Taxa de risco		Polinomial simples

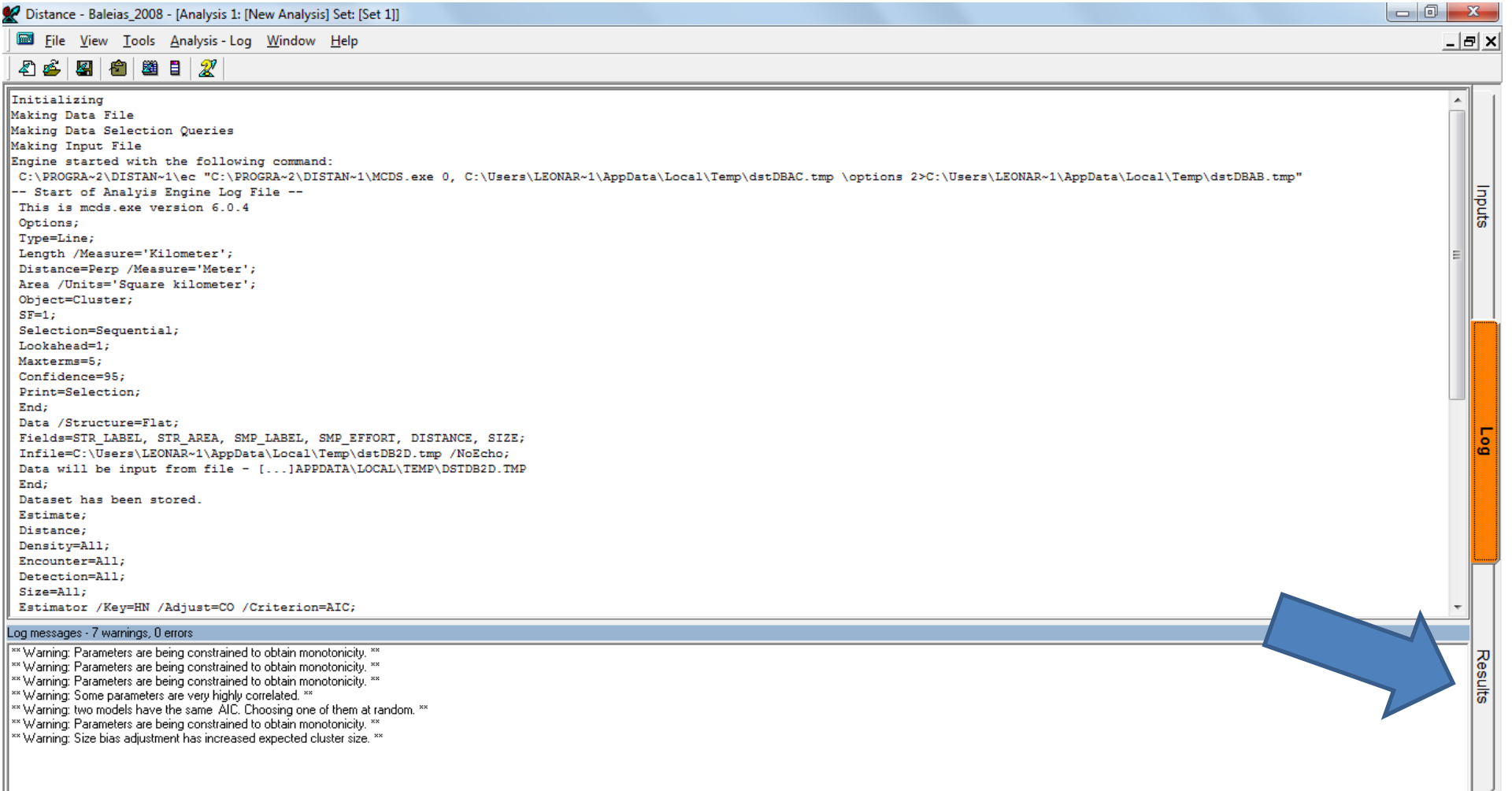
Defina o estimador da variância



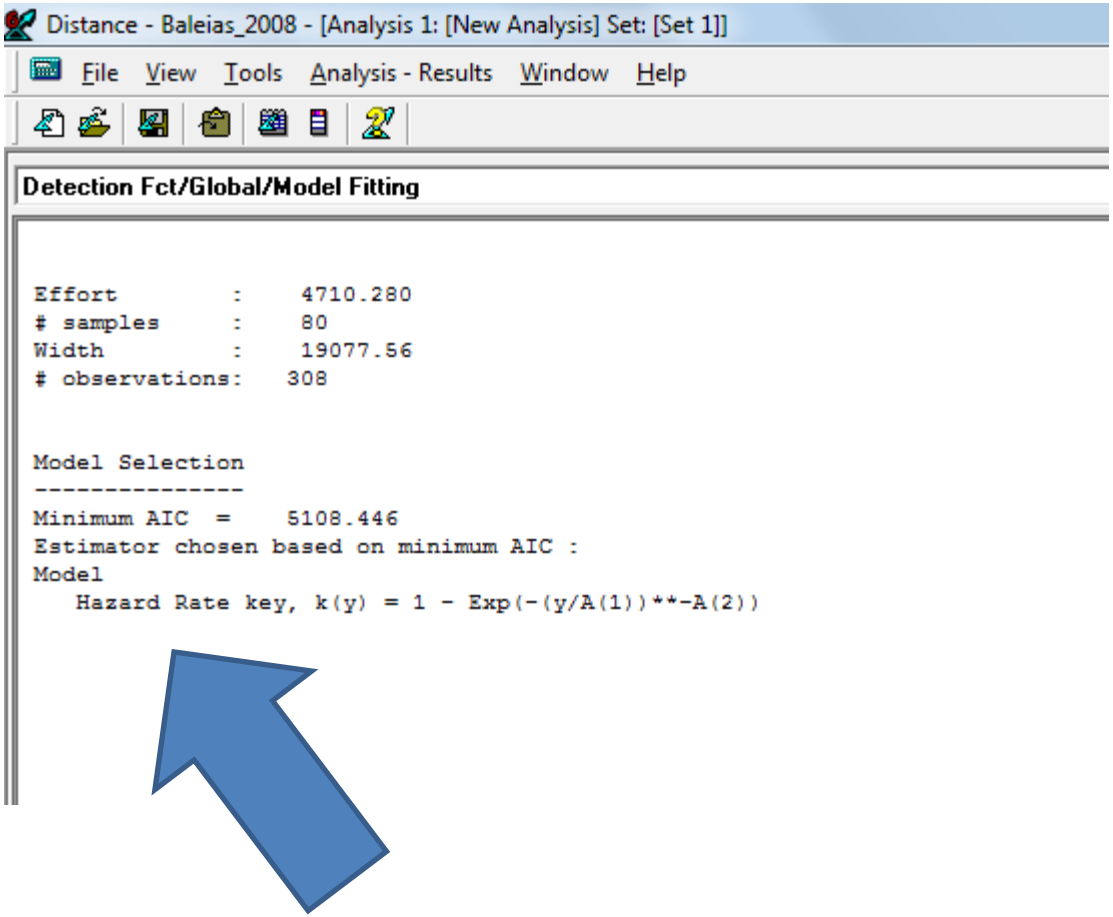
Corra este modelo



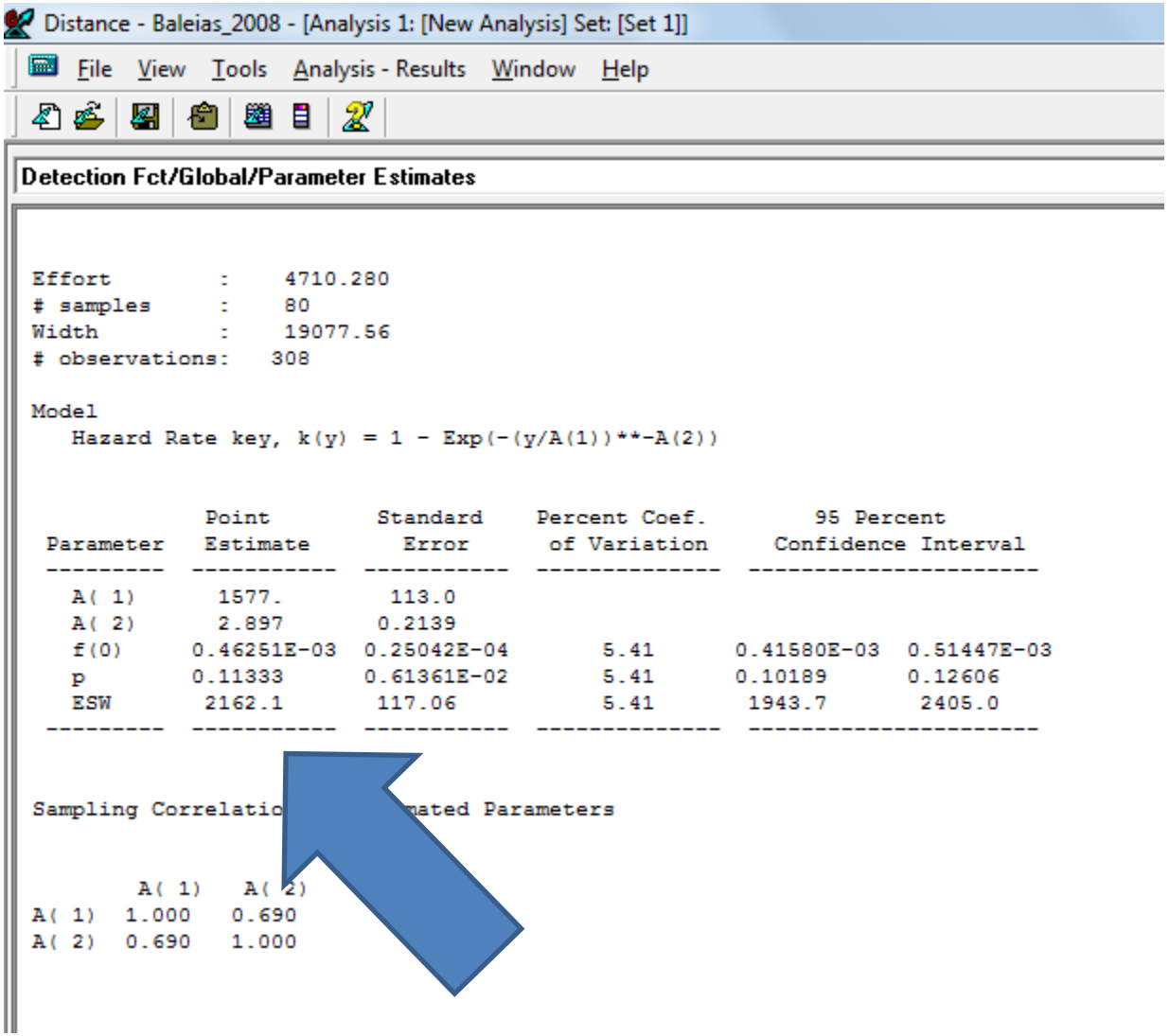
Vamos aos resultados



Função de detecção escolhida pelo AIC



Probabilidade de detecção e largura efetivamente amostrada



Distance - Baleias_2008 - [Analysis 1: [New Analysis] Set: [Set 1]]

File View Tools Analysis - Results Window Help

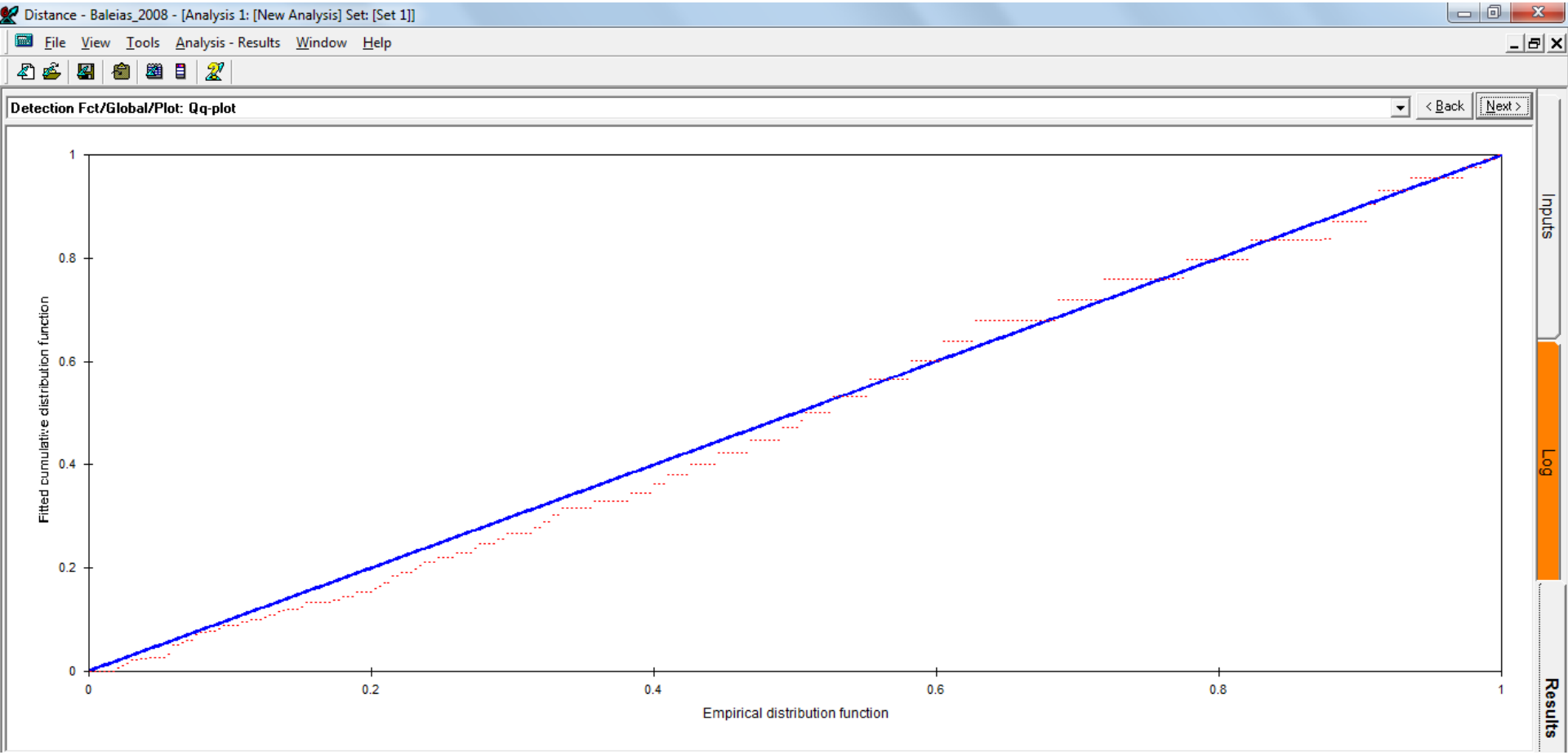
Detection Fct/Global/Parameter Estimates

```
Effort         :    4710.280
# samples      :    80
Width          :    19077.56
# observations:    308

Model
   Hazard Rate key, k(y) = 1 - Exp(-(y/A(1))**-A(2))
```

Parameter	Point Estimate	Standard Error	Percent Coef. of Variation	95 Percent Confidence Interval	
A(1)	1577.	113.0			
A(2)	2.897	0.2139			
f(0)	0.46251E-03	0.25042E-04	5.41	0.41580E-03	0.51447E-03
p	0.11333	0.61361E-02	5.41	0.10189	0.12606
ESW	2162.1	117.06	5.41	1943.7	2405.0

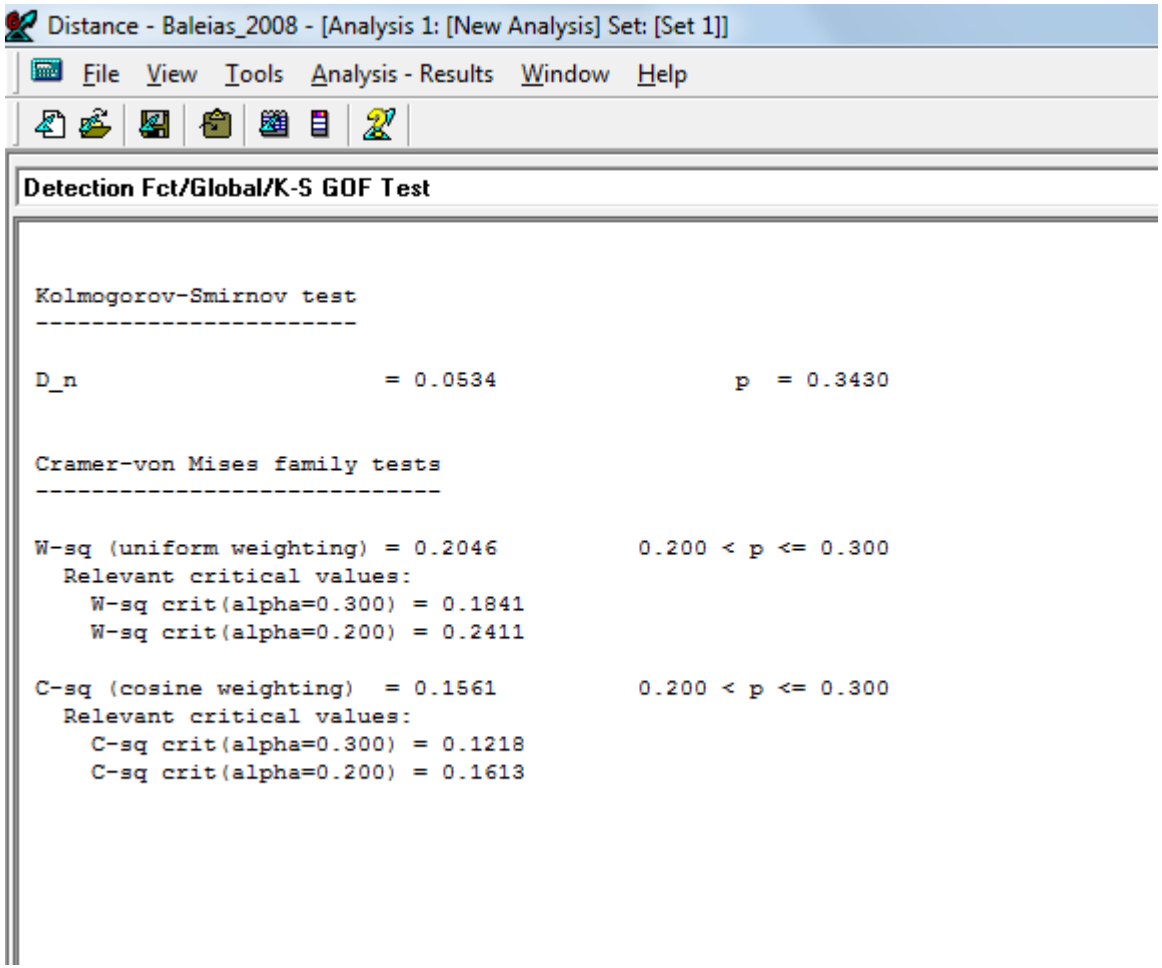
```
Sampling Correlatio      mated Parameters

         A( 1)    A( 2)
A( 1)   1.000    0.690
A( 2)   0.690    1.000
```

Q-Q plot

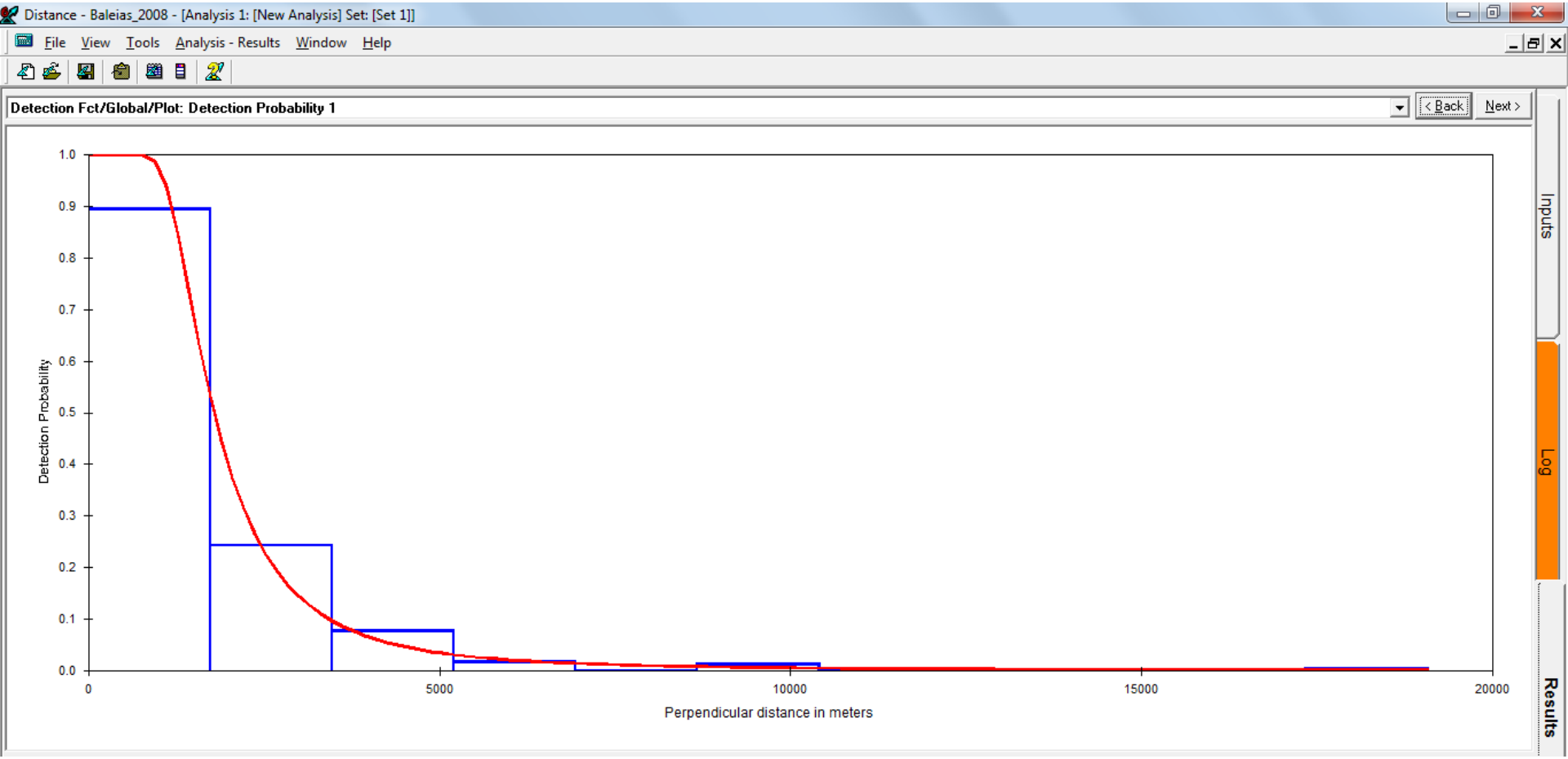


Mostra um bom ajuste do modelo aos dados

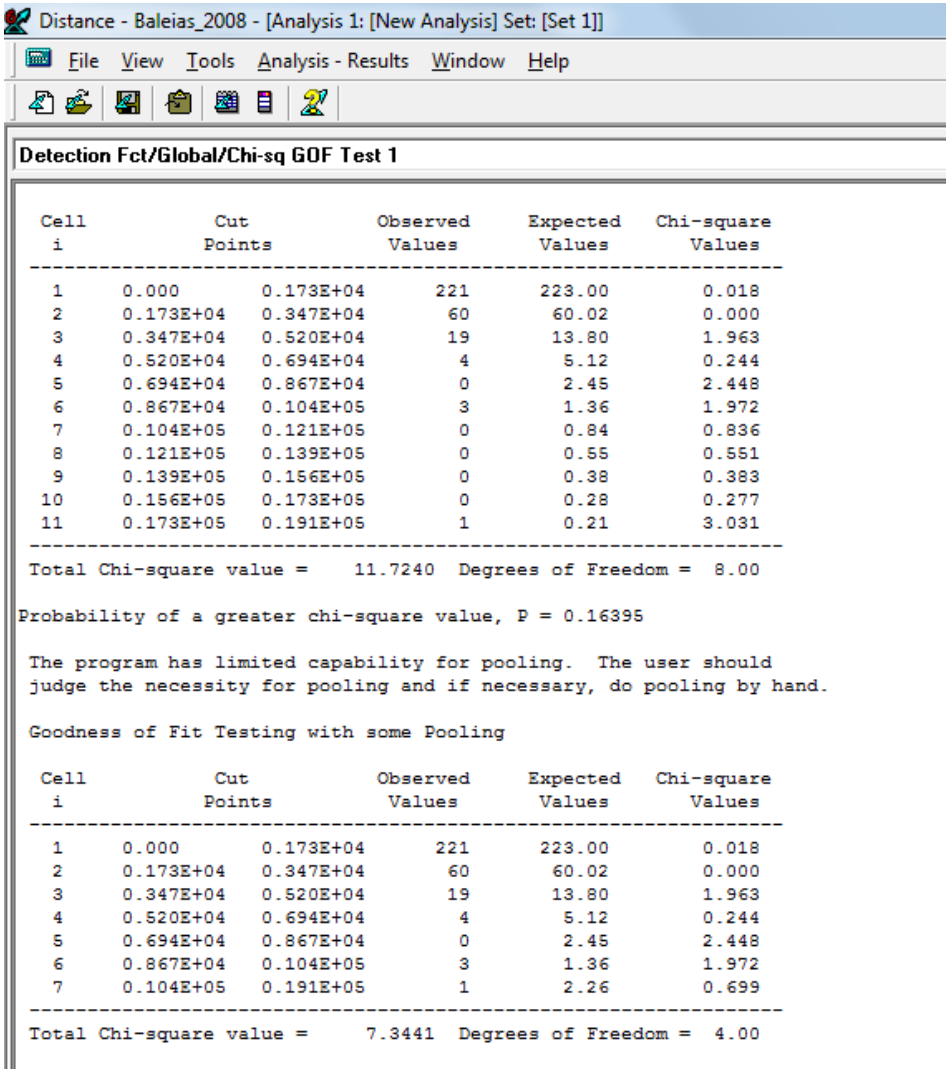
Testes de bom ajuste



Curva de detecção



Outro teste de bom ajuste (GOF)



Distance - Baleias_2008 - [Analysis 1: [New Analysis] Set: [Set 1]]

File View Tools Analysis - Results Window Help

Detection Fct/Global/Chi-sq GOF Test 1

Cell i	Cut Points		Observed Values	Expected Values	Chi-square Values
1	0.000	0.173E+04	221	223.00	0.018
2	0.173E+04	0.347E+04	60	60.02	0.000
3	0.347E+04	0.520E+04	19	13.80	1.963
4	0.520E+04	0.694E+04	4	5.12	0.244
5	0.694E+04	0.867E+04	0	2.45	2.448
6	0.867E+04	0.104E+05	3	1.36	1.972
7	0.104E+05	0.121E+05	0	0.84	0.836
8	0.121E+05	0.139E+05	0	0.55	0.551
9	0.139E+05	0.156E+05	0	0.38	0.383
10	0.156E+05	0.173E+05	0	0.28	0.277
11	0.173E+05	0.191E+05	1	0.21	3.031

Total Chi-square value = 11.7240 Degrees of Freedom = 8.00

Probability of a greater chi-square value, P = 0.16395

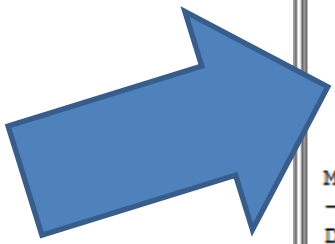
The program has limited capability for pooling. The user should judge the necessity for pooling and if necessary, do pooling by hand.

Goodness of Fit Testing with some Pooling

Cell i	Cut Points		Observed Values	Expected Values	Chi-square Values
1	0.000	0.173E+04	221	223.00	0.018
2	0.173E+04	0.347E+04	60	60.02	0.000
3	0.347E+04	0.520E+04	19	13.80	1.963
4	0.520E+04	0.694E+04	4	5.12	0.244
5	0.694E+04	0.867E+04	0	2.45	2.448
6	0.867E+04	0.104E+05	3	1.36	1.972
7	0.104E+05	0.191E+05	1	2.26	0.699

Total Chi-square value = 7.3441 Degrees of Freedom = 4.00

Estimativas



Distance - Baleias_2008 - [Analysis 1: [New Analysis] Set: [Set 1]]

File View Tools Analysis - Results Window Help

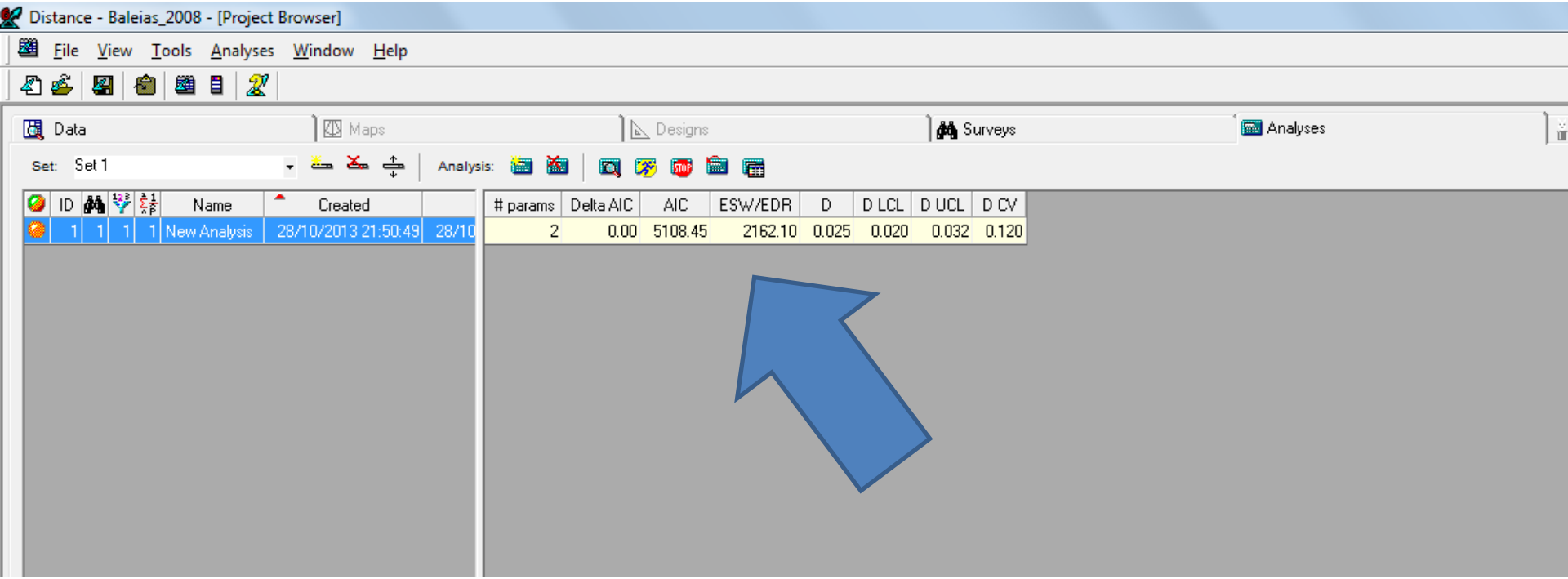
Density Estimates/Global

```
Effort         :    4710.280
# samples      :    80
Width          :    19077.56
# observations:    308

Model
   Hazard Rate key, k(y) = 1 - Exp(-(y/A(1))**-A(2))
```

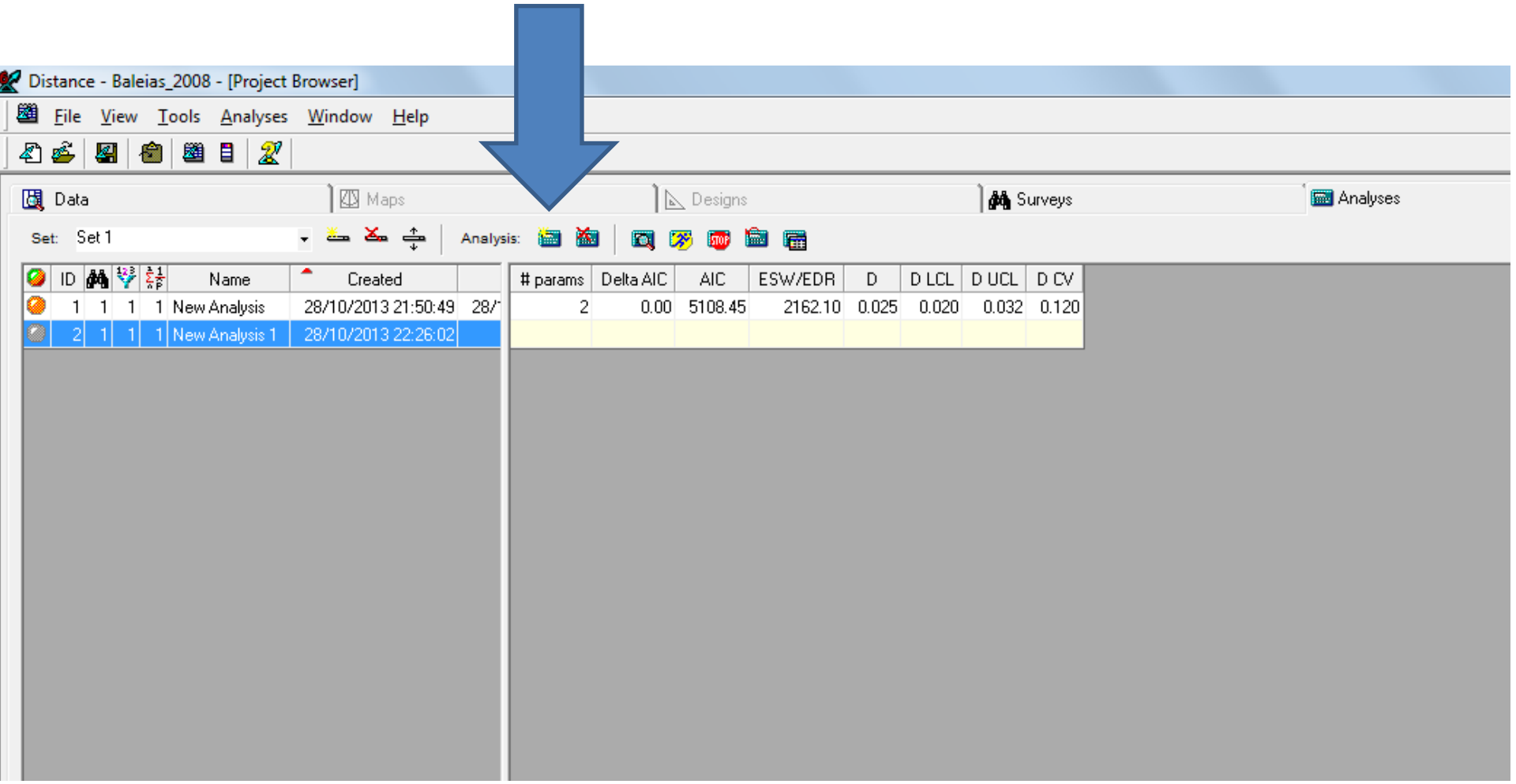
Parameter	Point Estimate	Standard Error	Percent Coef. of Variation	95% Percent Confidence Interval	
DS	0.15122E-01	0.17761E-02	11.75	0.11969E-01	0.19105E-01
E(S)	1.6488	0.43698E-01	2.65	1.5650	1.7371
D	0.24933E-01	0.30021E-02	12.04	0.19628E-01	0.31672E-01
N	3989.0	480.30	12.04	3140.0	5068.0

```
Measurement Units
---------------------------------
Density: Numbers/Sq. kilometers
    ESW: meters

Component Percentages of Var(D)
-------------------------------
Detection probability   :  20.2
Encounter rate          :  74.9
Cluster size            :   4.8
```

Nosso primeiro modelo



Crie um novo modelo



Crie novos filtros e novas definições de modelos