

# Alternating Least Squares - A tool for unraveling petroleum mixtures

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## Reservoir Calibration - Summary EGI

Overall Goal: To use ALS to unravel petroleum mixtures in exploration and reservoir development studies.

**Applications:**

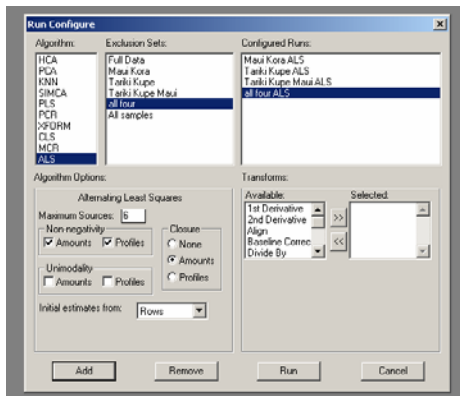
- **Commingled Productions**  
How much from each?
- **Reservoir compartmentization**  
Identify compartments and changes in seal integrity.
- **Exploration**  
Quantify contributions from multiple sources

**How can CAs get involved:**

- ✓ Sole source applied research projects (Reservoir studies)
- ✓ Consortium regional research projects (Exploration studies)

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Pirouette 3.11 with ALS algorithm

	Initial				ALS Predicted				Difference			
	MB	Kor	Tar	KS4	MB	Kor	Tar	KS4	MB	Kor	Tar	KS4
<b>MB</b>	100	0	0	0	93	4	1	2	7	-4	-1	-2
<b>Kor</b>	0	100	0	0	6	89	3	2	-6	11	-3	-2
<b>Tar</b>	0	0	100	0	2	1	97	0	-2	-1	3	0
<b>KS4</b>	0	0	0	100	0	0	0	100	0	0	0	0
<b>17</b>	10	20	30	40	16	16	32	36	-6	4	-2	4
<b>18</b>	40	30	20	10	41	27	20	12	-1	3	0	-2
<b>19</b>	20	10	60	10	23	7	62	8	-3	3	-2	2
<b>20</b>	25	25	25	25	30	21	27	22	-5	4	-2	3
<b>21</b>	40	15	20	25	42	13	22	23	-2	2	-2	2
<b>22</b>	70	10	10	10	71	8	11	10	-1	2	-1	0

ALS results for mixtures of 4 oils