

RACE FOR A NEW PLANET

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Race for a new planet

Agenda

- ▶ The Challenge: Description & Rules
- ▶ Coordinate Selection
 - ▶ Examine Different “What if” scenarios
 - ▶ What to do?
- ▶ Participants
- ▶ Month1: The race starts
 - ▶ Landing positions
 - ▶ Monthly report
- ▶ Month 2: The journey continues...
 - ▶ Landing positions
 - ▶ Monthly report
- ▶ Month 3: The final approach
 - ▶ Landing positions
 - ▶ Monthly report
 - ▶ Clusters of participants
 - ▶ Actions of participants
 - ▶ The Winners
 - ▶ What to take away
 - ▶ Participants Comments

The Challenge

Description & Rules

► The scene:

- Year 2090, and a small strange two-dimensional planet has just been discovered.
- Planet: 1,000km width x 1,000km length, seems to be deserted. No one currently owns this planet.
- Many people have decided to claim it, spaceships are been prepared for traveling to this planet.



► Rules from the Earth Government:

- All spaceships can start no earlier than February 1st.
- Any spaceship that will land on this planet until April 30th, may claim the ownership.
- Every spaceship must select a landing point on the planet.
- On May 1st, the new owner of this planet will be decided.

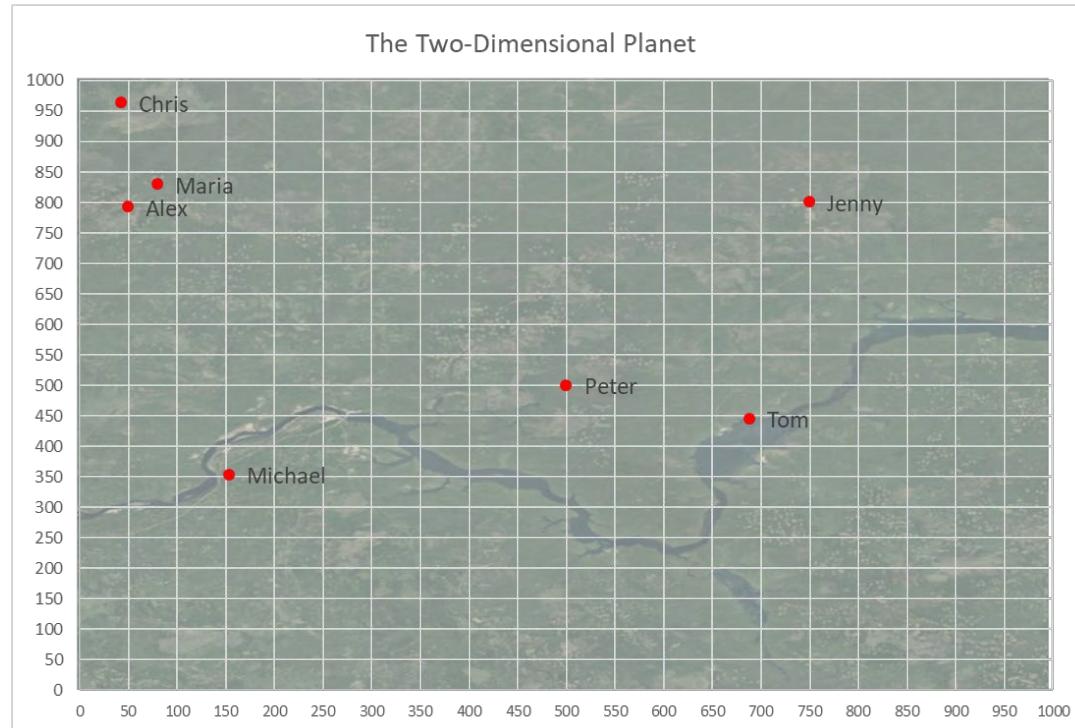
The Challenge

Description & Rules

► Who will own the planet?

- The new owner will be the spaceship that has landed **further away** from all other spaceships, based on the average distance from all others!

	X	Y
Alex	50	792
Tom	688	445
Maria	80	829
Michael	154	353
Chris	43	963
Jenny	750	800
Peter	500	500



The Challenge

Description & Rules

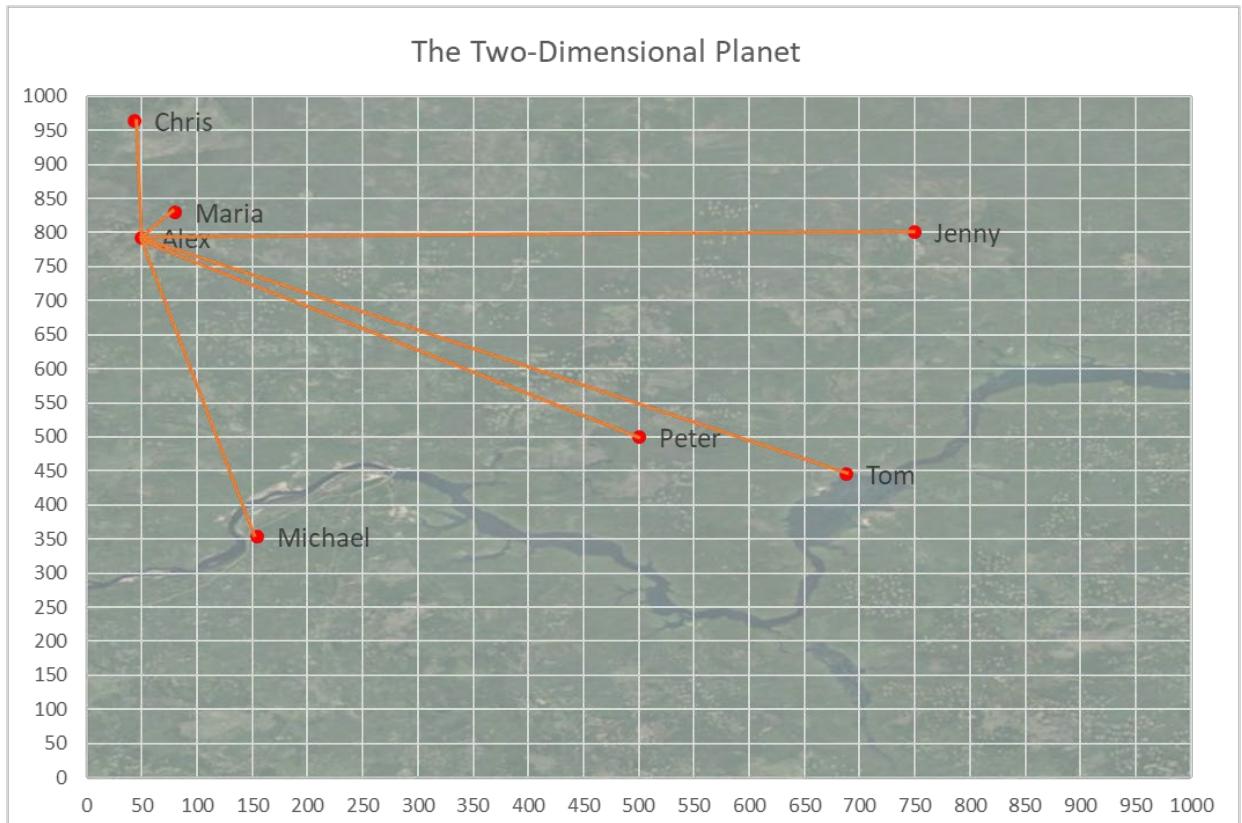
► Who will own the planet?

- Calculate all distances

		Alex	Tom	Maria	Michael	Chris	Jenny	Peter
	X	50	688	80	154	43	750	500
	Y	792	445	829	353	963	800	500
Alex	50	792	0,00	726,26	47,63	451,15	171,14	700,05
Tom	688	445	726,26	0,00	719,11	541,87	827,25	360,37
Maria	80	829	47,63	719,11	0,00	481,72	139,01	670,63
Michael	154	353	451,15	541,87	481,72	0,00	620,02	375,93
Chris	43	963	171,14	827,25	139,01	620,02	0,00	725,55
Jenny	750	800	700,05	360,37	670,63	745,00	725,55	0,00
Peter	500	500	536,44	195,88	533,52	375,93	650,55	390,51
Average Distance		438,78	561,79	431,94	535,95	522,25	598,68	447,14

Same average distance?

The winner will be the spaceship that started the race earlier



► Jenny has the biggest average distance

The Challenge

Description & Rules

► How to participate?

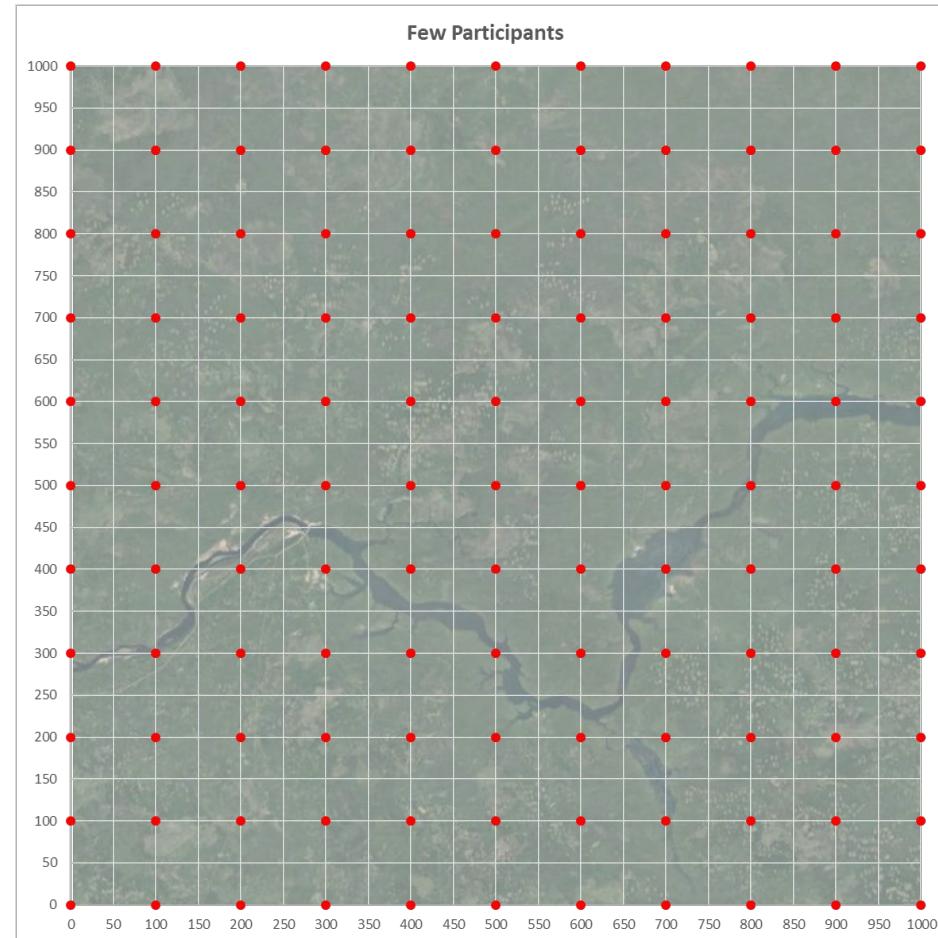
- The race had a duration of 3 months!
- Month 1: The race starts
 - Duration: February
 - Select initial landing coordinates (X,Y)
- Month 2: The journey continues
 - Duration: March
 - Look on the provided statistics and decide:
 - Select new landing coordinates (X,Y) OR Keep previous coordinates
- Month 3: The final approach
 - Duration: April
 - Look on the provided updated statistics and decide:
 - Select new landing coordinates (X,Y) OR Keep previous coordinates



Coordinates Selection

What if: few participants, equal distribution?

	X	Y	Score
Corner	0	0	783,32
Corner	0	1000	783,32
Corner	1000	0	783,32
Corner	1000	1000	783,32
A	100	1000	725,36
B	100	0	725,36
C	0	100	725,36
D	0	900	725,36
E	900	1000	725,36
F	900	0	725,36
G	1000	900	725,36
H	1000	100	725,36
I	800	1000	679,06
J	200	0	679,06
K	200	1000	679,06



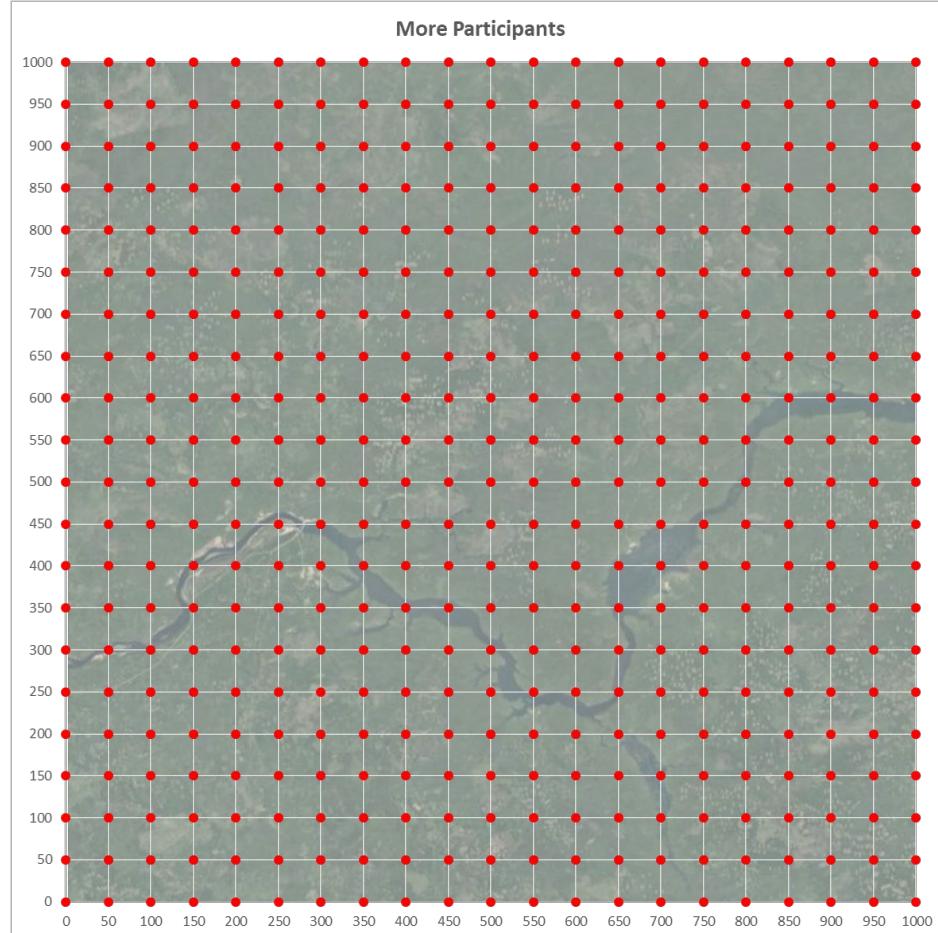
► 121 participants

► Best: In 4 corners

Coordinates Selection

What if: more participants, equal distribution?

	X	Y	Score
Corner	1000	1000	772,81
Corner	1000	0	772,81
Corner	0	0	772,81
Corner	0	1000	772,81
P22	50	0	742,05
P440	1000	950	742,05
P422	1000	50	742,05
P2	0	50	742,05
P20	0	950	742,05
P42	50	1000	742,05
P400	950	0	742,05
P420	950	1000	742,05
P43	100	0	714,01
P63	100	1000	714,01
P3	0	100	714,01
P423	1000	100	714,01
P379	900	0	714,01
P399	900	1000	714,01
P19	0	900	714,01
P439	1000	900	714,01
P23	50	50	710,12
P41	50	950	710,12
P401	950	50	710,12
P419	950	950	710,12
P64	150	0	688,88
P84	150	1000	688,88
P18	0	850	688,88
P378	850	1000	688,88
P424	1000	150	688,88
P358	850	0	688,88
P4	0	150	688,88
P438	1000	850	688,88



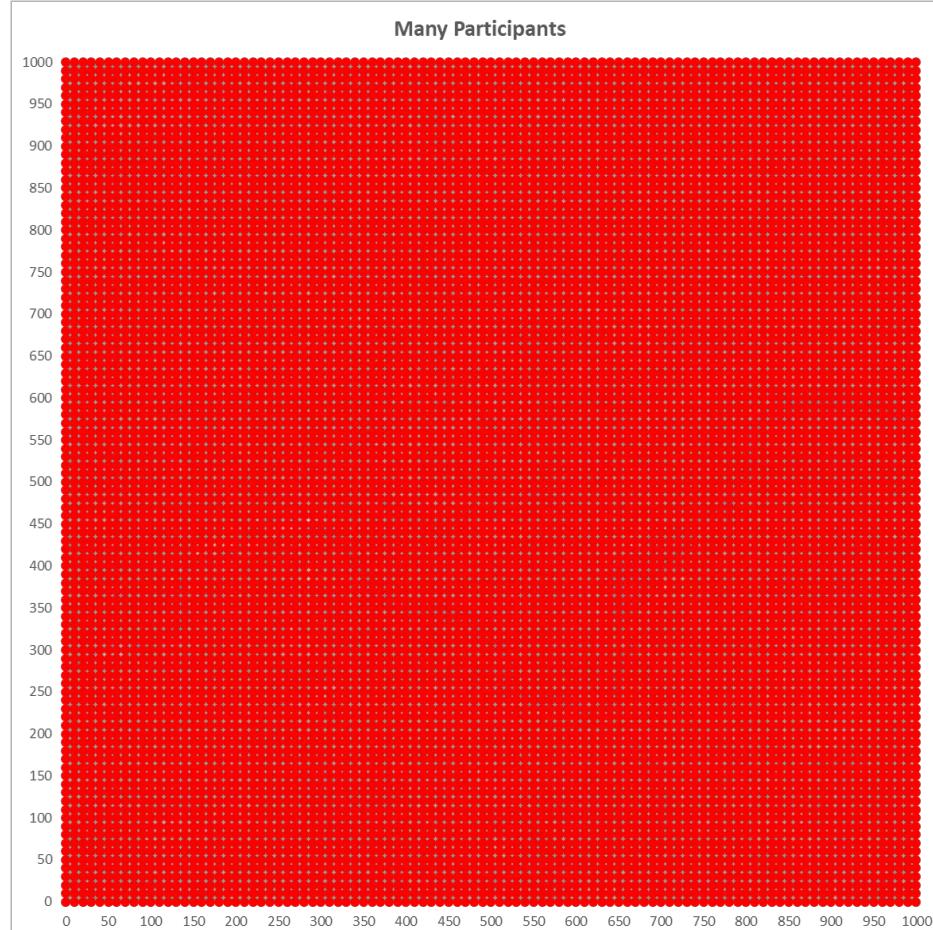
► 441 participants

► Best: In 4 corners

Coordinates Selection

What if: many participants, equal distribution?

	X	Y	Score
Corner	1000	1000	766,45
Corner	1000	0	766,45
Corner	0	1000	766,45
Corner	0	0	766,45
P	990	0	760,03
P	1000	10	760,03
P	990	1000	760,03
P	1000	990	760,03
P	0	990	760,03
P	10	1000	760,03
P	10	0	760,03
P	0	10	760,03
P	980	1000	753,71
P	980	0	753,71
P	1000	20	753,71
P	0	980	753,71
P	1000	980	753,71
P	0	20	753,71
P	20	0	753,71
P	20	1000	753,71
P	990	10	753,56
P	990	990	753,56
P	10	990	753,56
P	10	10	753,56
P	970	1000	747,48
P	970	0	747,48
P	0	970	747,48



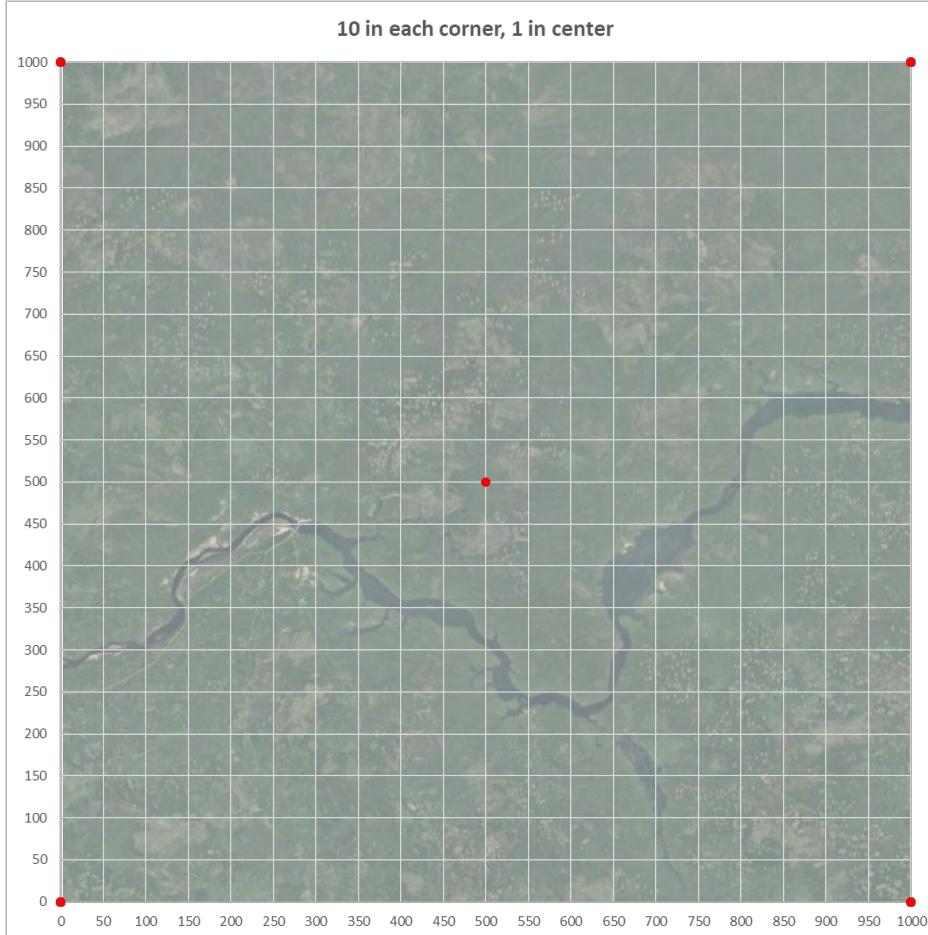
► 10.000 participants

► Best: In 4 corners

Coordinates Selection

What if: 10 in each corner, 1 in center?

	X	Y	Score
D1	1000	1000	871,23
D2	1000	1000	871,23
D3	1000	1000	871,23
D4	1000	1000	871,23
D5	1000	1000	871,23
D6	1000	1000	871,23
D7	1000	1000	871,23
D8	1000	1000	871,23
D9	1000	1000	871,23
D10	1000	1000	871,23
B1	1000	0	871,23
B2	1000	0	871,23
B3	1000	0	871,23
B4	1000	0	871,23
B5	1000	0	871,23
B6	1000	0	871,23
B7	1000	0	871,23
B8	1000	0	871,23
B9	1000	0	871,23
B10	1000	0	871,23
C1	0	1000	871,23
C2	0	1000	871,23
C3	0	1000	871,23
C4	0	1000	871,23
C5	0	1000	871,23
C6	0	1000	871,23
C7	0	1000	871,23
C8	0	1000	871,23
C9	0	1000	871,23
C10	0	1000	871,23
A1	0	0	871,23
A2	0	0	871,23
A3	0	0	871,23
A4	0	0	871,23
A5	0	0	871,23
A6	0	0	871,23
A7	0	0	871,23
A8	0	0	871,23
A9	0	0	871,23
A10	0	0	871,23
X10	500	500	707,11



► 41 participants

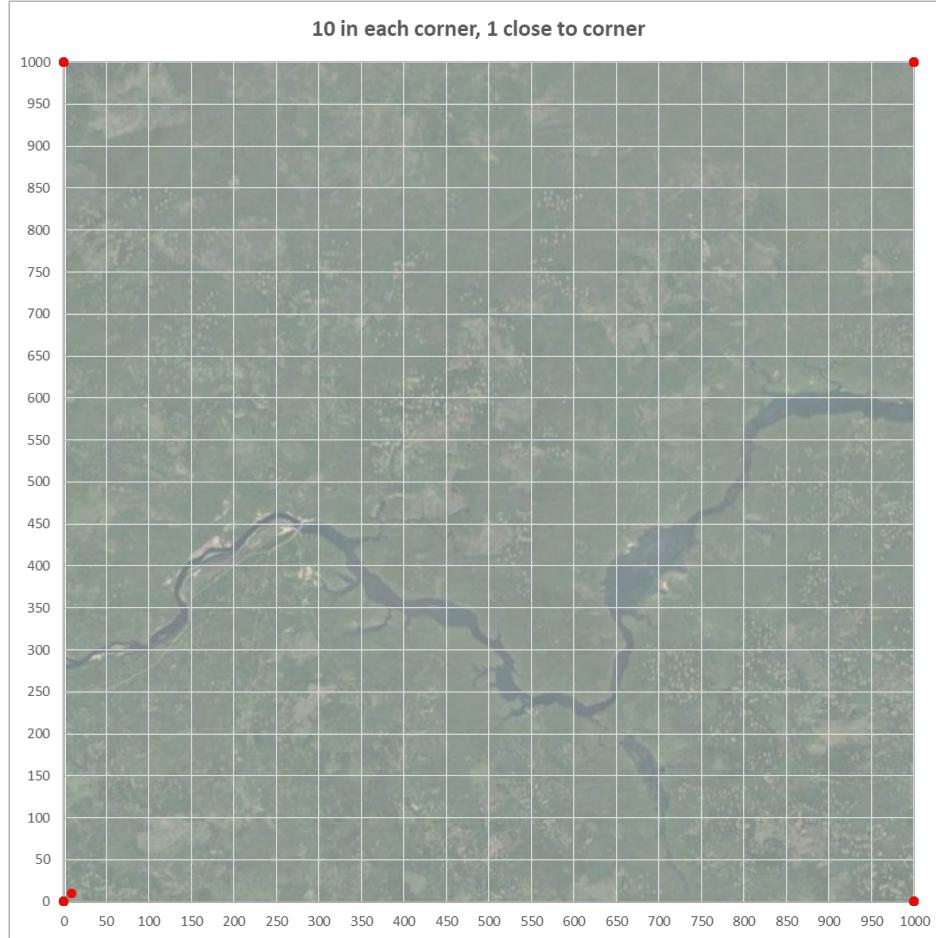
► Worst: In center

► Best: In 4 corners

Coordinates Selection

What if: 10 in each corner, 1 close to a corner?

	X	Y	Score
D1	1000	1000	888,56
D2	1000	1000	888,56
D3	1000	1000	888,56
D4	1000	1000	888,56
D5	1000	1000	888,56
D6	1000	1000	888,56
D7	1000	1000	888,56
D8	1000	1000	888,56
D9	1000	1000	888,56
D10	1000	1000	888,56
B1	1000	0	878,30
B2	1000	0	878,30
B3	1000	0	878,30
B4	1000	0	878,30
B5	1000	0	878,30
B6	1000	0	878,30
B7	1000	0	878,30
B8	1000	0	878,30
B9	1000	0	878,30
B10	1000	0	878,30
C1	0	1000	878,30
C2	0	1000	878,30
C3	0	1000	878,30
C4	0	1000	878,30
C5	0	1000	878,30
C6	0	1000	878,30
C7	0	1000	878,30
C8	0	1000	878,30
C9	0	1000	878,30
C10	0	1000	878,30
A1	0	0	853,91
A2	0	0	853,91
A3	0	0	853,91
A4	0	0	853,91
A5	0	0	853,91
A6	0	0	853,91
A7	0	0	853,91
A8	0	0	853,91
A9	0	0	853,91
A10	0	0	853,91
X10	10	10	848,58



► 41 participants

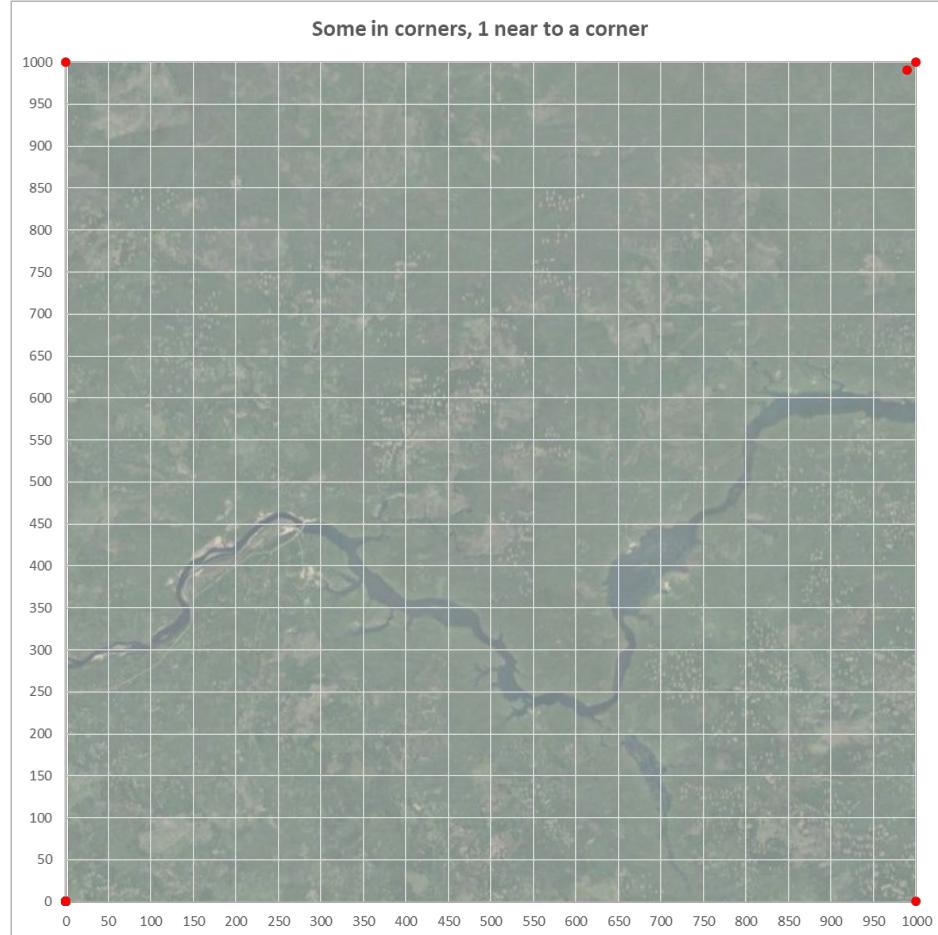
► Worst: close to a corner

► Best: In the diagonal corner

Coordinates Selection

What if: 10 in a corner, 1 to other corners & close to a corner?

	X	Y	Score
D1	1000	1000	1317,32
X1	990	990	1304,16
B1	1000	0	1017,58
C1	0	1000	1017,58
A1	0	0	209,32
A2	0	0	209,32
A3	0	0	209,32
A4	0	0	209,32
A5	0	0	209,32
A6	0	0	209,32
A7	0	0	209,32
A8	0	0	209,32
A9	0	0	209,32
A10	0	0	209,32
A11	0	0	209,32
A12	0	0	209,32
A13	0	0	209,32
A14	0	0	209,32
A15	0	0	209,32
A16	0	0	209,32
A17	0	0	209,32
A18	0	0	209,32
A19	0	0	209,32
A20	0	0	209,32



► 24 participants

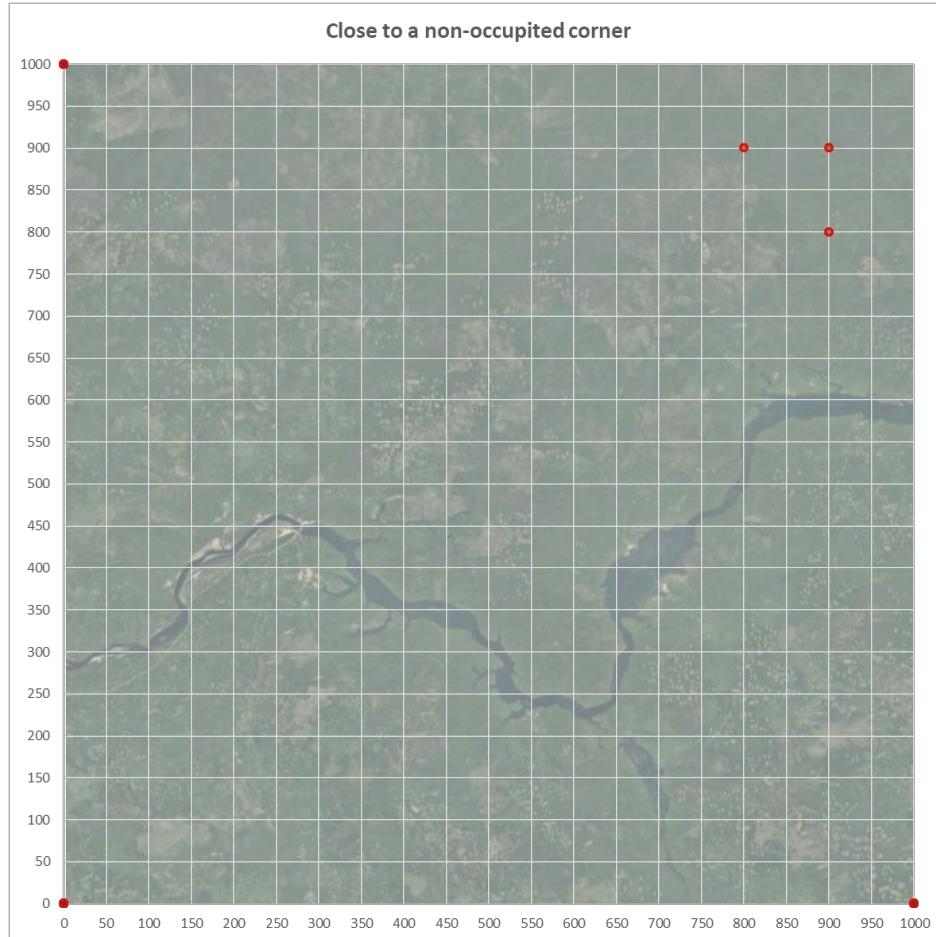
► Worst: in a corner

► Best: In a corner

Coordinates Selection

What if: 20 in 3 corners, 3 close to a free corner?

	X	Y	Score
X3	900	900	998,02
X1	800	900	949,81
X2	900	800	949,81
B1	1000	0	821,26
B2	1000	0	821,26
B3	1000	0	821,26
B4	1000	0	821,26
B5	1000	0	821,26
B6	1000	0	821,26
B7	1000	0	821,26
B8	1000	0	821,26
B9	1000	0	821,26
B10	1000	0	821,26
B11	1000	0	821,26
B12	1000	0	821,26
B13	1000	0	821,26
B14	1000	0	821,26
B15	1000	0	821,26
B16	1000	0	821,26
B17	1000	0	821,26
B18	1000	0	821,26
B19	1000	0	821,26
B20	1000	0	821,26
C1	0	1000	821,26
C2	0	1000	821,26
C3	0	1000	821,26
C4	0	1000	821,26
C5	0	1000	821,26



► 63 participants

► Worst: in a corner

► Best: internal point

Coordinates Selection

What to do then?

► How to think?

- Hypothesis: Everybody would select a random landing position
- Best position: The opposite corner to the average position of all others

► What the other would do?

- If everybody thinks like this, everybody would go to a corner position

► What I should do?

- Choose the correct corner.

► Only a corner can win?

- No, another location can win, but only if the closer corner is not selected (...difficult...)

► Open question?

- Should I choose directly (from 1st month) a corner?
- Should I try to be further away from all other, just for gaining information and/or influence (for 1st and 2nd month), and then choose a corner on the last (3rd) month?



Participants

Analysis per Country

► From 20 countries

Country	Participants
Austria	3
Brazil	1
Bulgaria	1
China	3
Czech Republic	2
Germany	98
Hungary	1
India	21
Israel	1
Japan	1
Mexico	1
Poland	2
Portugal	4
Romania	3
Russia	1
South Korea	1
Spain	1
Turkey	1
USA	5
Vietnam	1
TOTAL	152

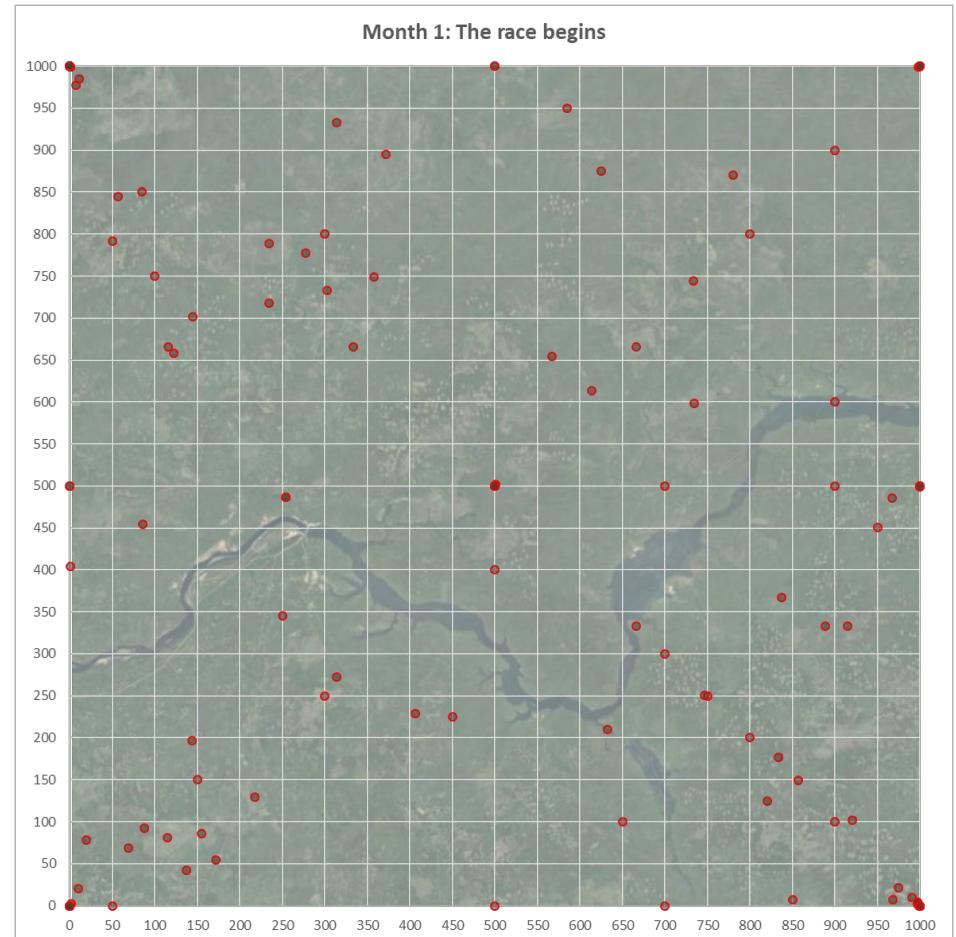


Month 1: The race starts

Landing positions

► 132 Participants

- All 4 corners already selected

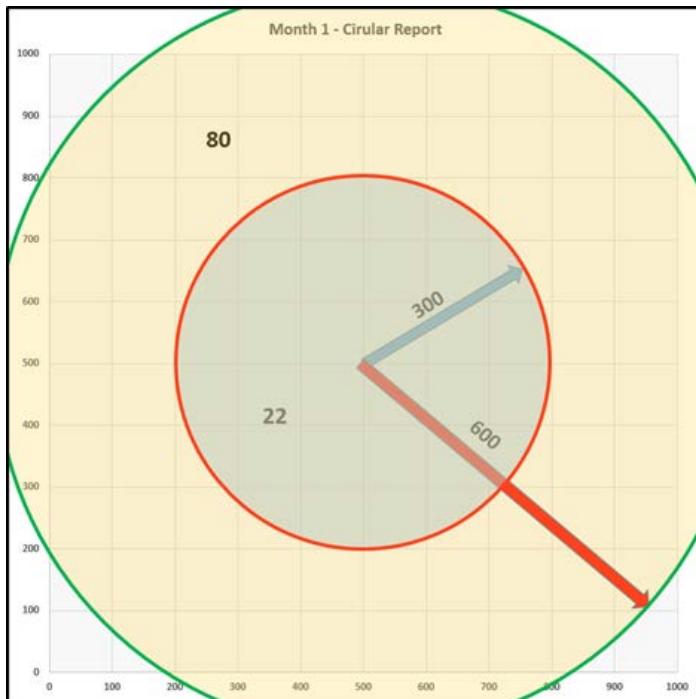


Month 1: The race starts

Monthly Report

► Message arrived:

- “Captain, I have some interesting news! We have intercept signals from the other spaceships!



- **22 spaceships** are planning to land in a spot with distance **0 – 300 km** from the center of the planet.
- **80 spaceships** are planning to land in a spot with distance **0 – 600 km** from the center of the planet.
- **The rest** are planning to land in a spot with distance **greater than 600km** from the center.

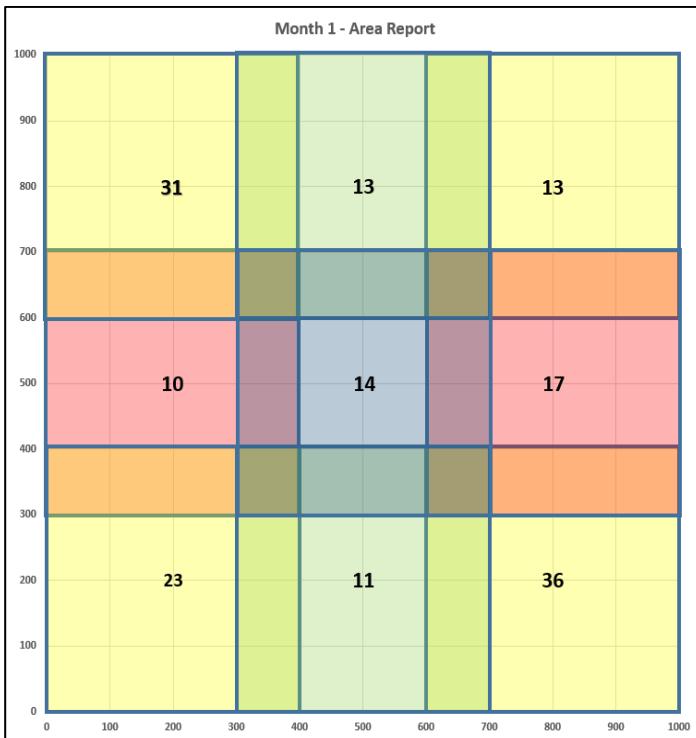
30

Month 1: The race starts

Monthly Report

► Message arrived:

- “Also, we have a draft view of their distribution on the planet, based on 9 square areas”



- “Please beware that **these 9 areas are overlapping!!!**”
- “Captain..., there is something else that I need to point out... If we manage to intercept the signals, I am pretty sure that all spaceships have manage to do the same...”
-
- “What should we do Captain?”
- “Should we keep our landing coordinates?”
- “Or, should we select a new landing spot?”
- “...”

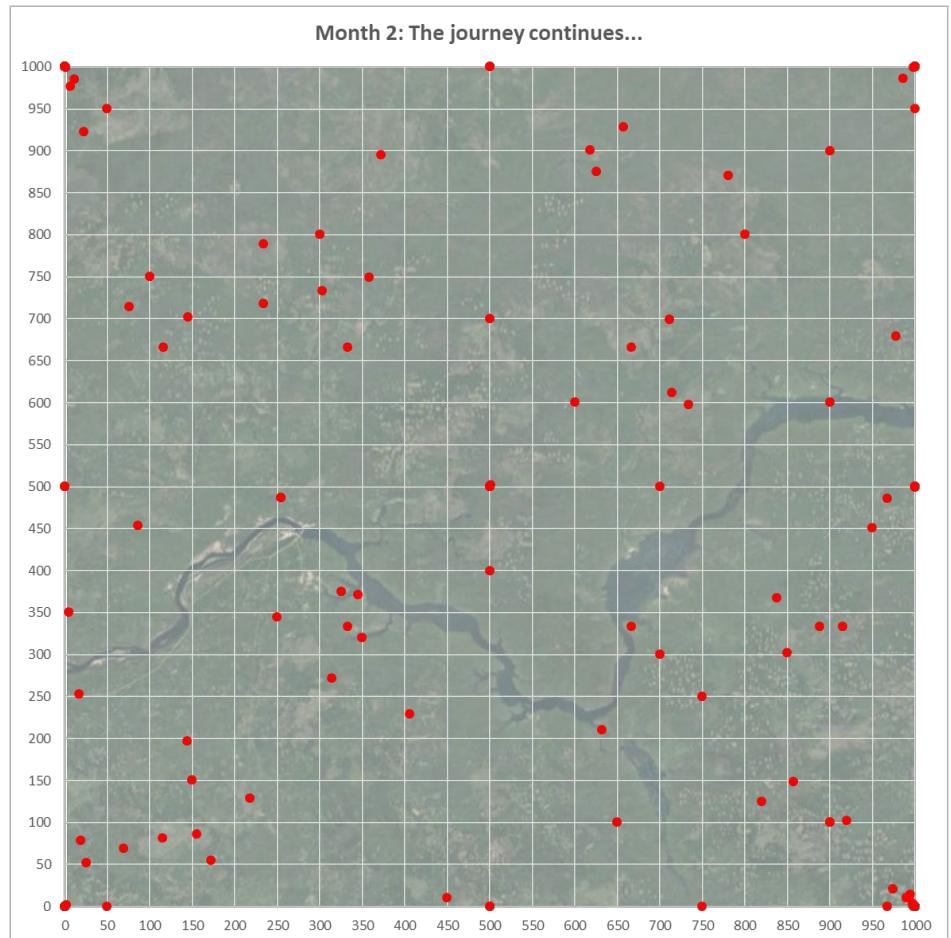


Month 2: The journey continues...

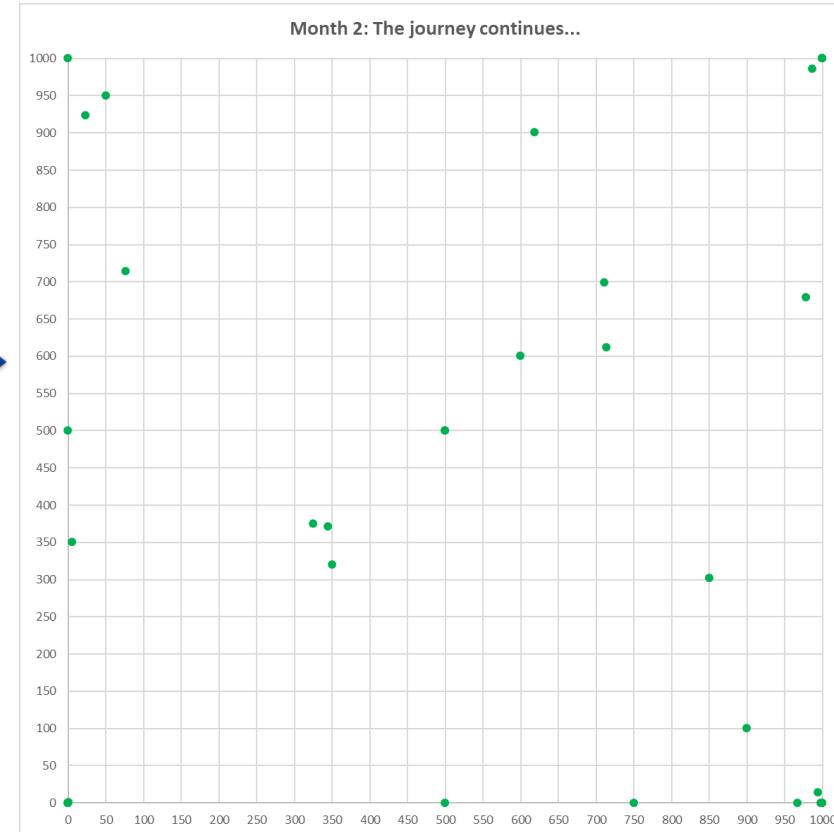
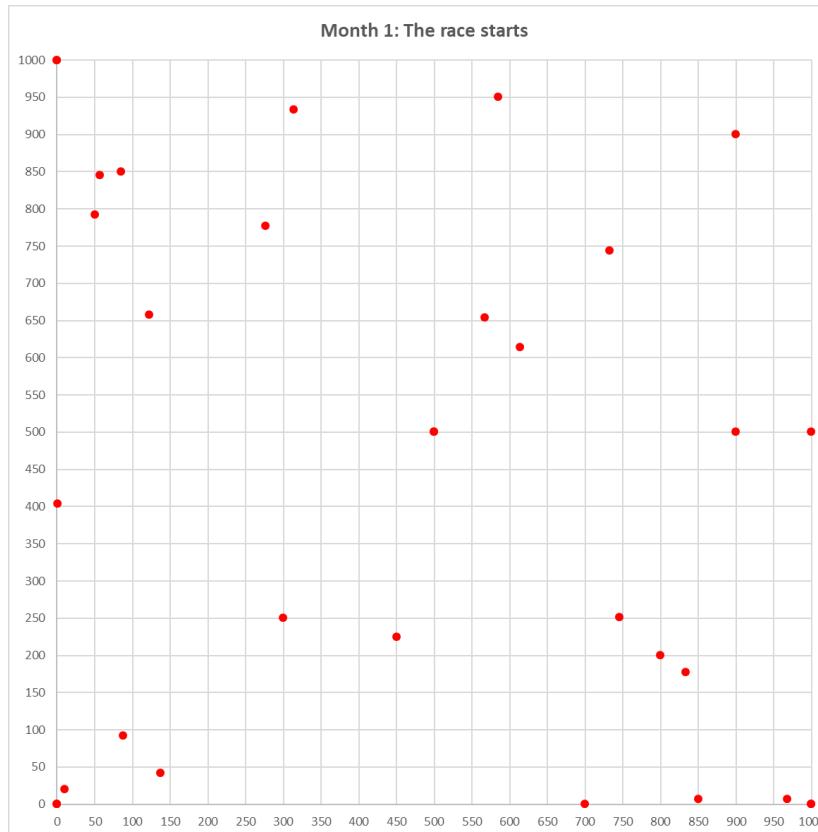
Landing positions

► 146 Participants

- 14 new spaceships have entered the race.
- From the 132 existing spaceships:
 - 33 have changed their landing coordinates (25%)
 - 99 have keep the same coordinates (75%)



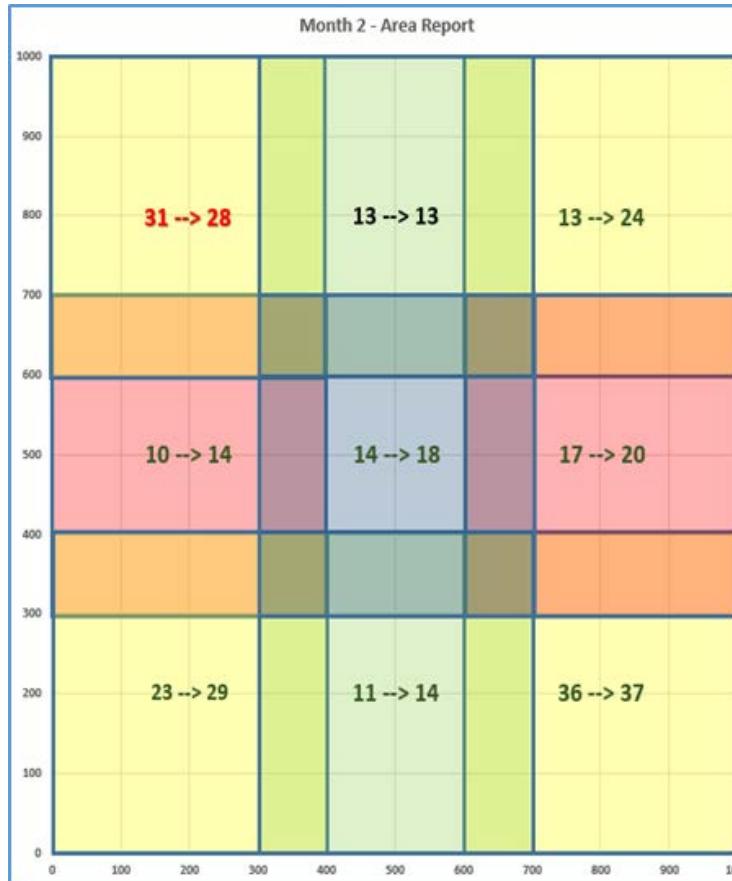
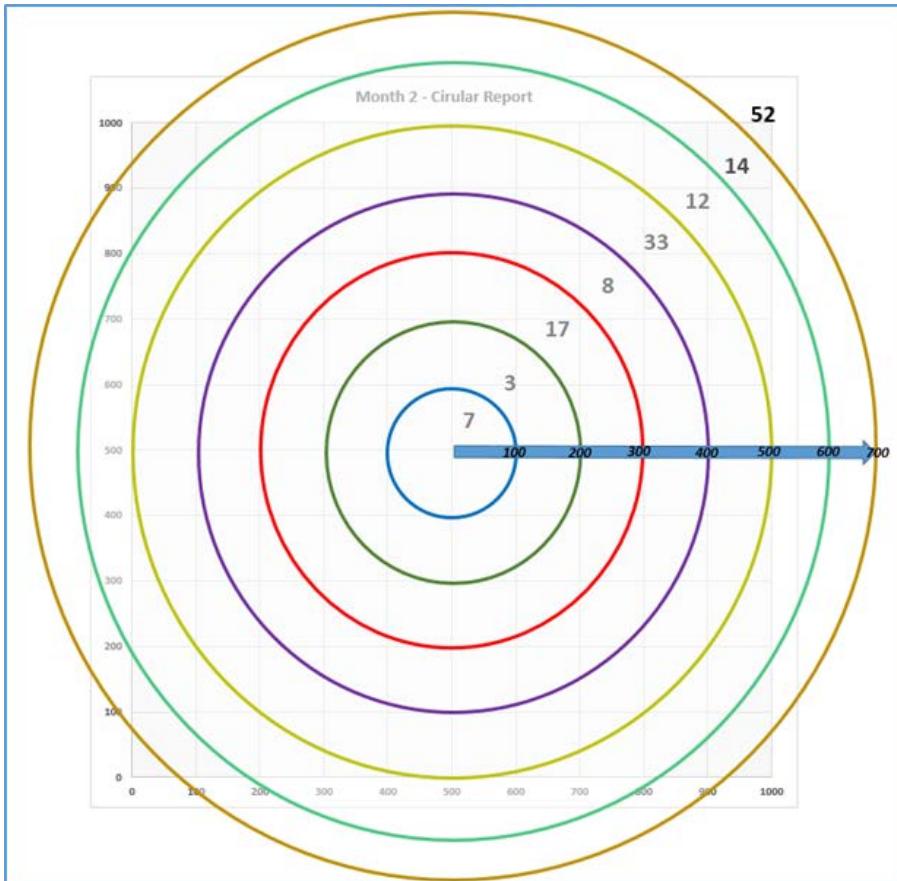
Month 2: The journey continues... How they change their coordinates?



- Change corner: 3
- Closer to corner: 16
- Away from corner: 14

Month 2: The journey continues...

Monthly Report

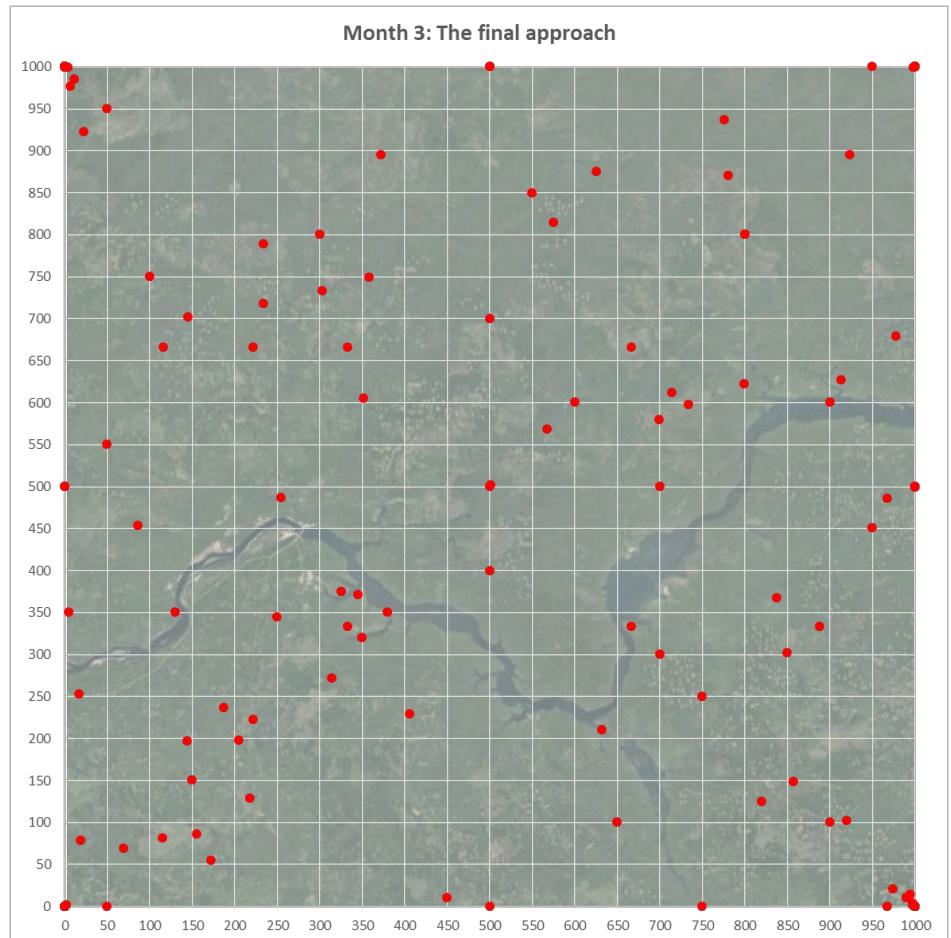


Month 3: The final approach

Landing positions

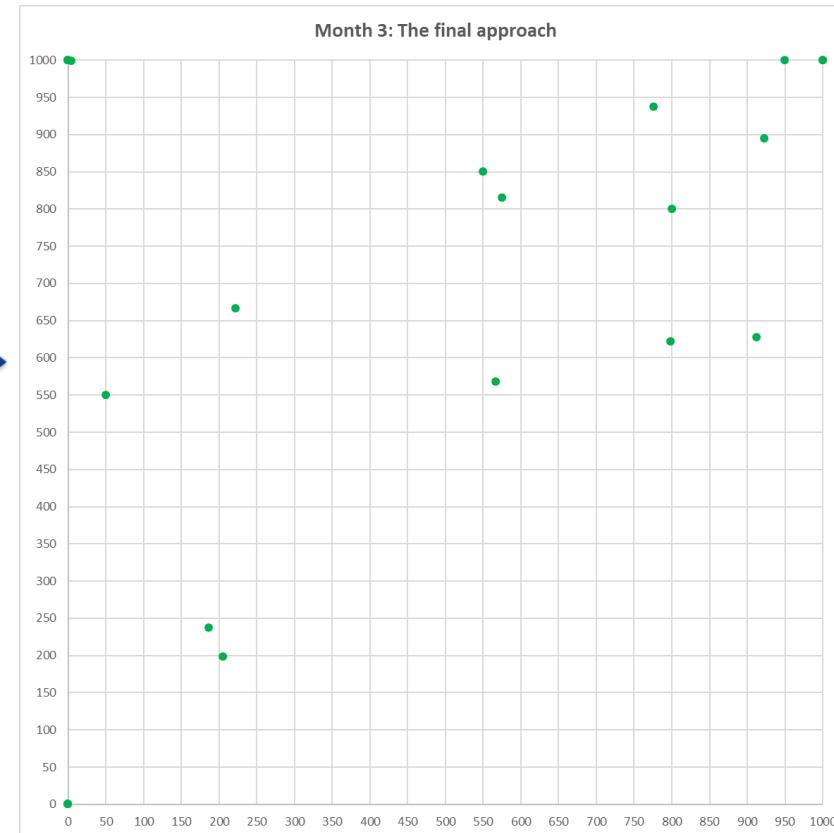
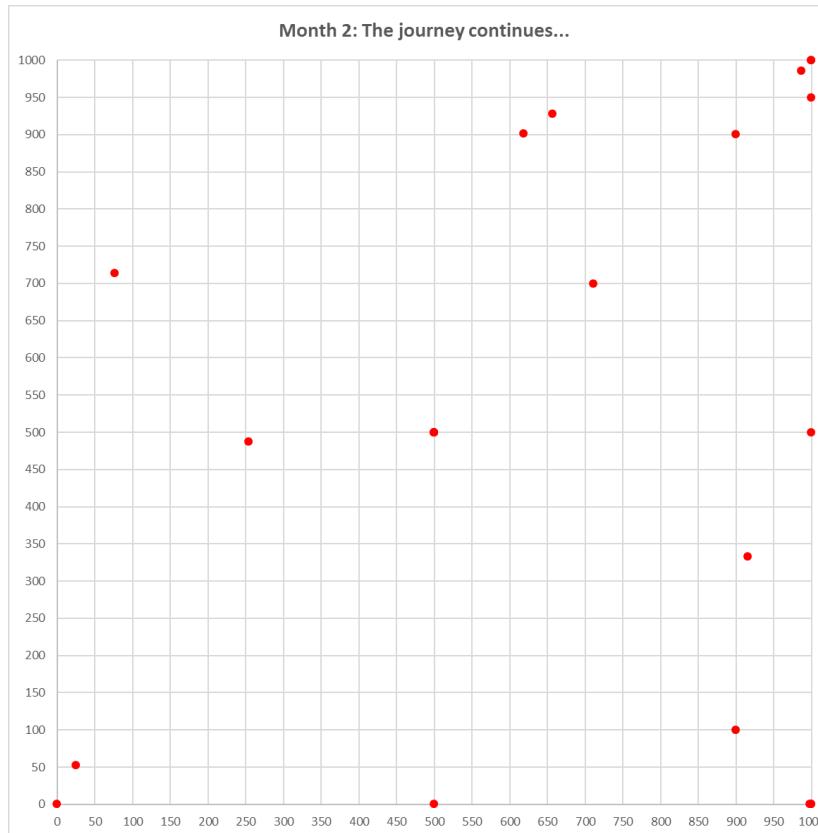
► 152 Participants

- 6 new spaceships have entered the race.
- From the 146 existing spaceships:
 - 23 have changed their landing coordinates (16%)
 - 123 have keep the same coordinates (84%)



Month 3: The final approach

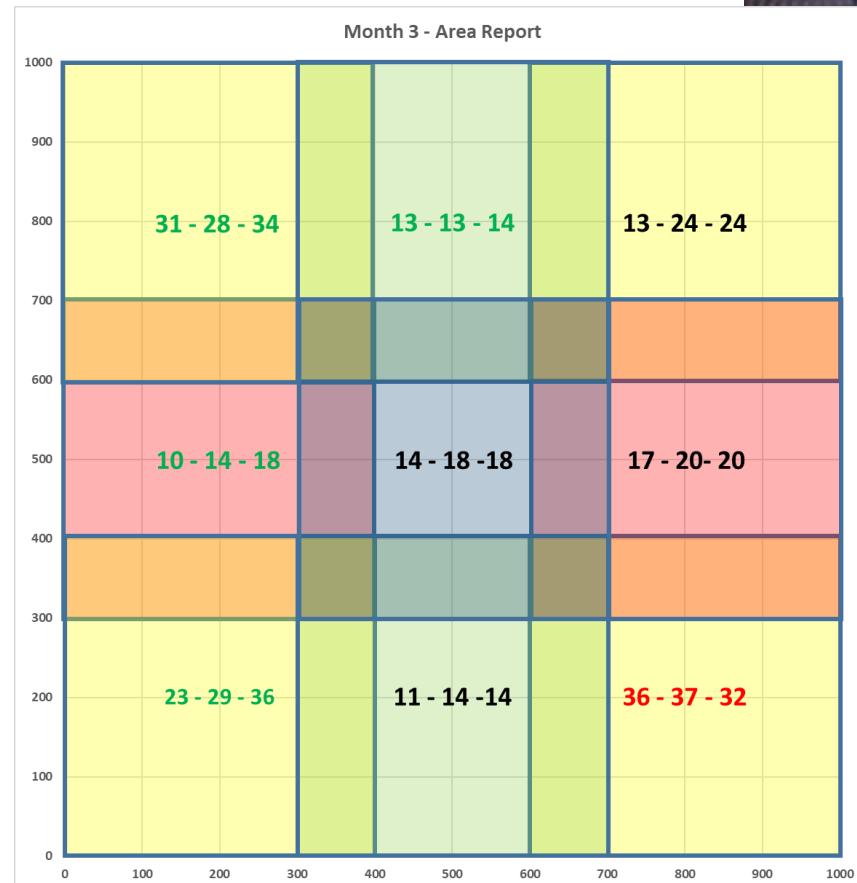
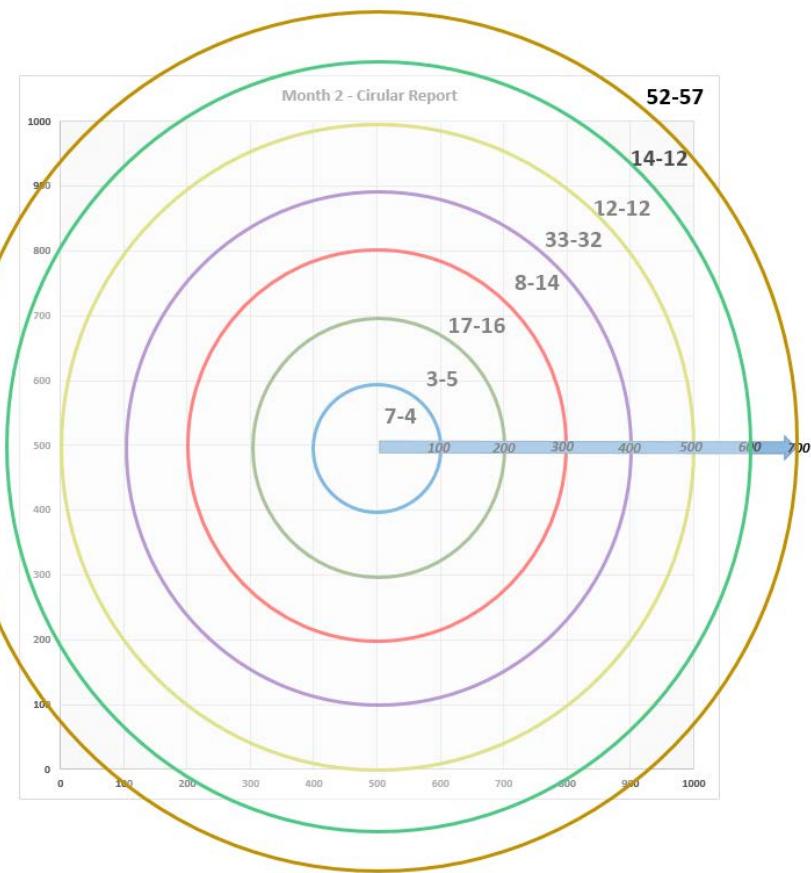
How they change their coordinates?



- Change corner: 4
- Closer to corner: 12
- Away from corner: 7

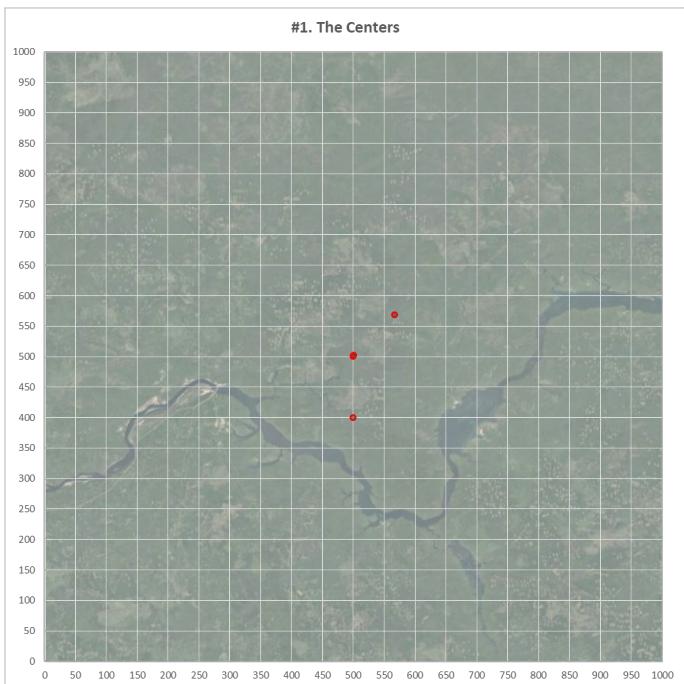
Month 3: The final approach

Monthly Report



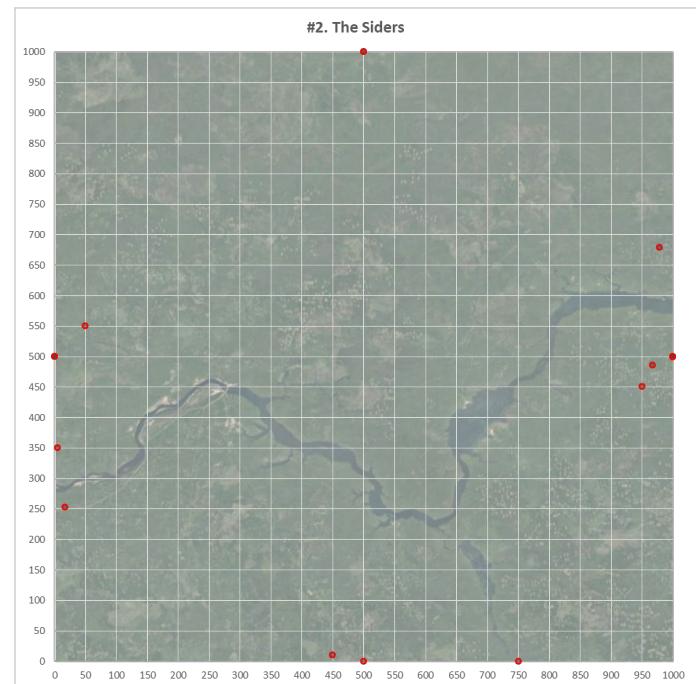
Cluster of Participants

#1. The Centers...



* Up to 100km from Center

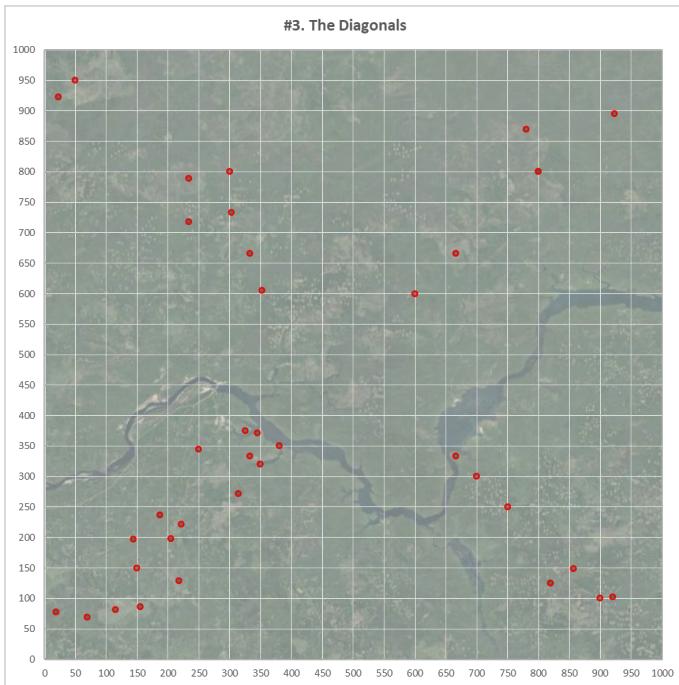
#2. The Siders...



* Up to 50km from a side

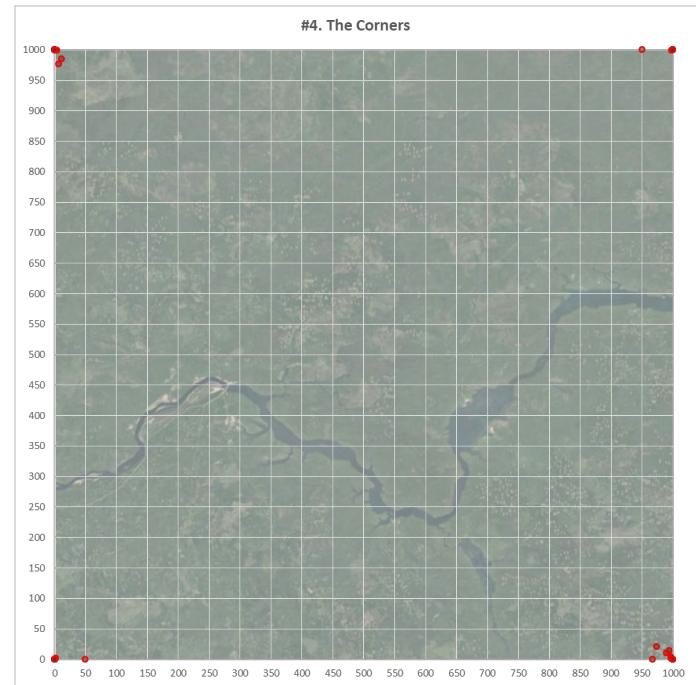
Cluster of Participants

#3. The Diagonals...



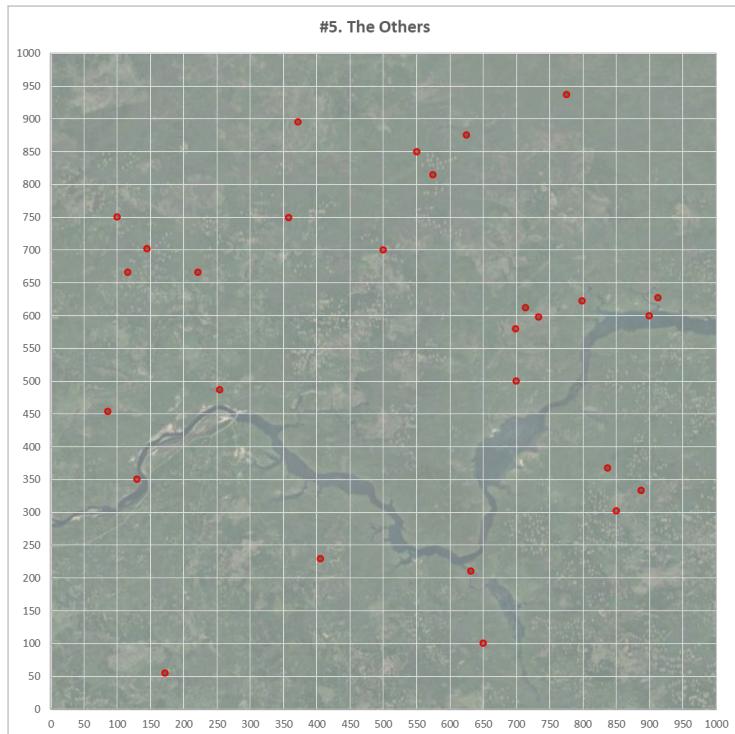
* Up to 100km from the diagonal

#4. The Corners...



Cluster of Participants

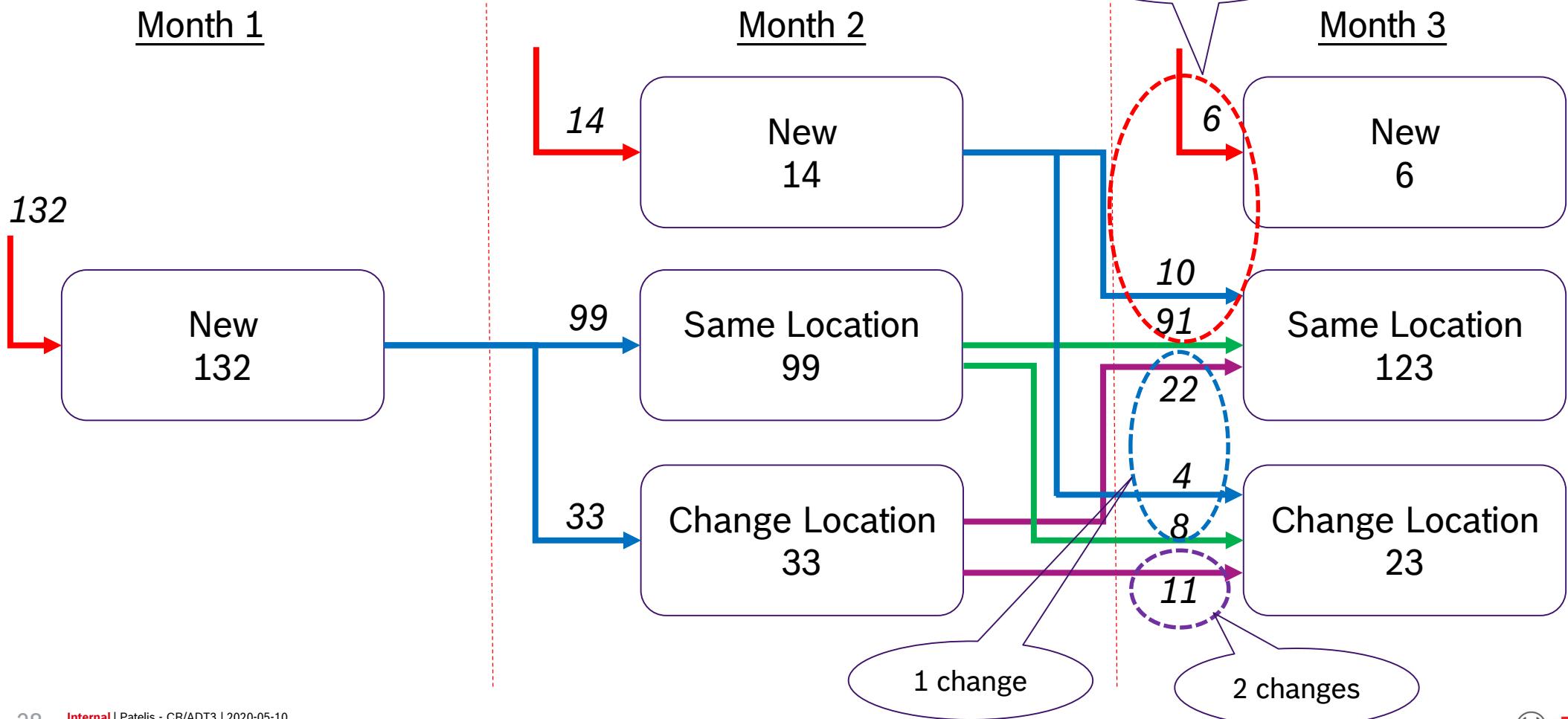
#5. The Others...



	Count	%
Center	4	2,6%
Sider	17	11,2%
Diagonal	38	25,0%
Corner	65	42,8%
Other	28	18,4%
Total	152	

Actions of Participants

Actions per Phase

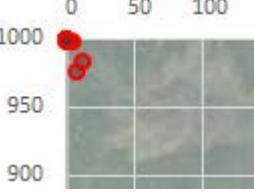
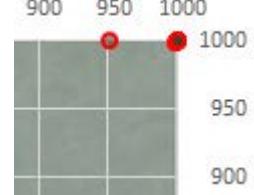
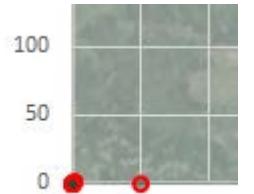
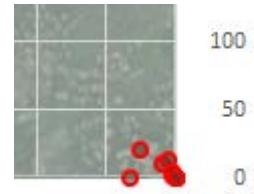


The Winner Selection of a Corner

► 65 Participants (Up to 50km from a corner)



- ❖ One of the four corners will win, no matter what distribution the other spaceships have. In the last round, I expect something like an even distribution among the four corners, and the winner will be the corner with the least selections, probably a very close result...

 <p>Corner (0,1000)</p> <ul style="list-style-type: none">► Month 1: 15 near → 11 exactly on the corner► Month 2: 15 near → 11 exactly on the corner► Month 3: 20 near → 14 exactly on the corner	 <p>Corner (1000,1000)</p> <ul style="list-style-type: none">► Month 1: 5 near → 3 exactly on the corner► Month 2: 12 near → 8 exactly on the corner► Month 3: 11 near → 8 exactly on the corner
 <p>Corner (0,0)</p> <ul style="list-style-type: none">► Month 1: 10 near → 7 exactly on the corner► Month 2: 12 near → 9 exactly on the corner► Month 3: 15 near → 12 exactly on the corner	 <p>Corner (1000,0)</p> <ul style="list-style-type: none">► Month 1: 19 near → 10 exactly on the corner► Month 2: 22 near → 11 exactly on the corner► Month 3: 19 near → 9 exactly on the corner

- ❖ Looking on “Month 2 Report” distribution, looks like upper-right corner is less populated → should be the ideal spot...
- ❖ But, if everyone follows this reasoning and goes to upper-right, then bottom-left would be optimum....

The Winner Winners

	Name	Department	X,Y	Distance
1	Dilk Christoph	WujP/CTG	1000,1000	858.05
=	Schreiter Jens	AE/MSD3	1000,1000	858.05
=	Sinz Sebastian	PS-EC/EBY3-JP	1000,1000	858.05
=	Kovachev Georgi	INST/EGS	1000,1000	858.05
=	Fuhrmann Florian	EB/QMM	1000,1000	858.05
=	Wehefritz Karsten	PS-EC/PAC3-PC	1000,1000	858.05
=	Ravishankar Sivasamy	SO/OPM21-IN	1000,1000	858.05
=	Staib Holger	CI/OSO2	1000,1000	858.05
9	Sweta Kumari	CI/DAP41.4	999,999	856.95
10	Donner Patrick	PS/CTG1	998,999	856.42

	Name	Department	X,Y	Distance
11	Kopp Christine	AA-AS/ESC6	950,1000	833.23
12	Klug Steffen	AE/MSD3	1000,0	805.14
=	Jurz Mona	PS-EC/PAC2-PC	1000,0	805.14
=	Maka Torsten	CR/AEV1	1000,0	805.14
=	Huber Christoph	CCA-GRB	1000,0	805.14
=	Kobiela Fanny	CR/AEU1	1000,0	805.14
=	Drikitis Alexander	DC/PJ-ELMO	1000,0	805.14
=	Krug Tobias	PS-EC/PAC1-PC	1000,0	805.14
=	Pereira Maria	CI/CBW1	1000,0	805.14
=	Pradeep Janardhan	RBEI/ENP2	1000,0	805.14

Race for a new planet

What to take away

- ▶ Take into account all perspectives for solving a problem, logic & psychologic.
- ▶ Do not expect that all will behave rationally! Humans behave irrationally.
- ▶ Document and justify your forecasts
- ▶ In the light of new information, if you don't adjust your view, you won't capture the value of that information.
- ▶ **Forecast – Measure – Revise – Repeat.** It's a never ending process.

Race for a new planet

Participants Comments

- ▶ *Awesome idea for analytics purposes. I will try my best to contribute.*
- ▶ *Thank you so much and congratulations for the idea!*
- ▶ *Interesting experiment!*
- ▶ *This should be fun!*
- ▶ *Thank you for organizing!*
- ▶ *Thanks for quite an interesting, exciting and unique race.*
- ▶ *Cool problem, I'd love to pick a space less crowded :-)*
- ▶ *Thanks for organizing and letting us activate some different parts of our brain ;-)*
- ▶ *Nice to see that you are coming up with some new stuff again!*
- ▶ *Great idea, thank you.*

THANK YOU



“The mind is not a vessel to be filled, but a fire to be kindled.”

Plutarch, Greek Historian