

Patterns for map makers

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The goal of this document is to produce a list of common map features that exist broadly across competitive FAF maps, as well as classify various map categories, in order to 1) assist communication between mapmakers and the matchmaker team; 2) improve the quality of new maps by distilling common map elements and providing a foundation for a well made competitive map.

The strategies one can apply during a game depends on the layout of a map. The layout is determined by the terrain, the resource locations and where (initial) reclaim is. This document outlines common patterns that reward or punish certain types of strategies. It attempts to bridge the gap of knowledge by introducing a vocabulary that we can use to create and discuss maps that are intended for competitive play.

Authors:

- Jip
- *Archsimkat*
- Harzer
- Blast_Chilled
- Blodir
- Silene_Undulata
- **Morax**

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Background

Before we can discuss patterns we need a common vocabulary. In this first chapter we'll name various terrain features, various miscellaneous features, and gameplay elements. We'll make sure to use existing naming conventions when possible.

Terrain features

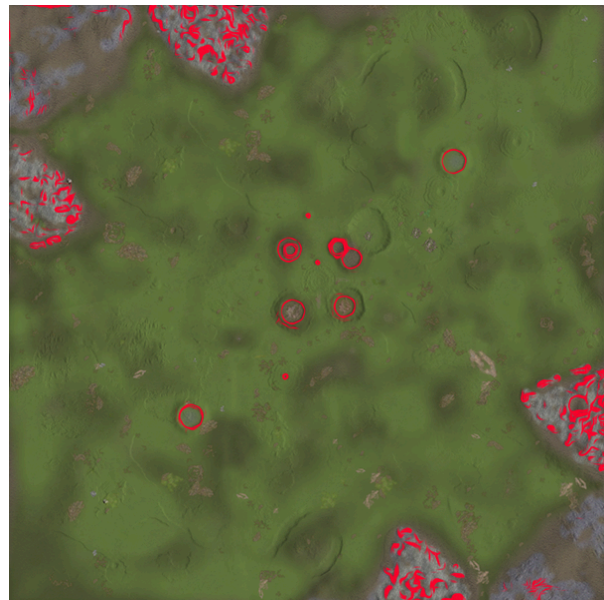
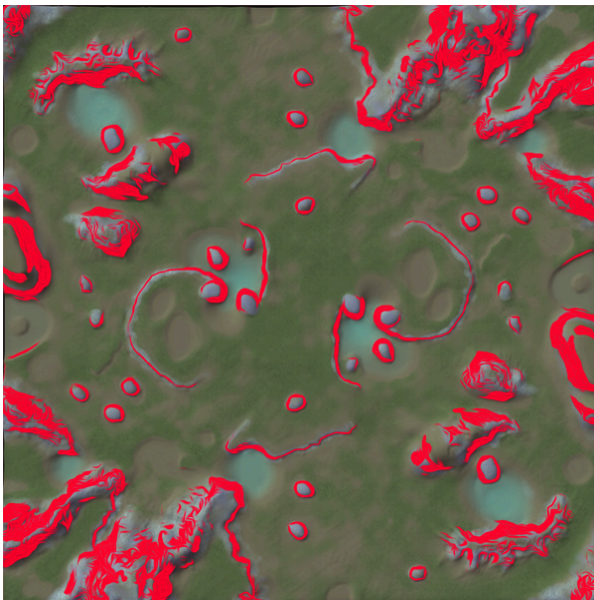
A terrain feature is defined by the height map.

Ridge (Cliff)

A ridge is in between a high ground and a low ground, creating an unpathable line that land units can not cross, but does not significantly affect air units. As an example, take the map *Hardshield Oasis*:



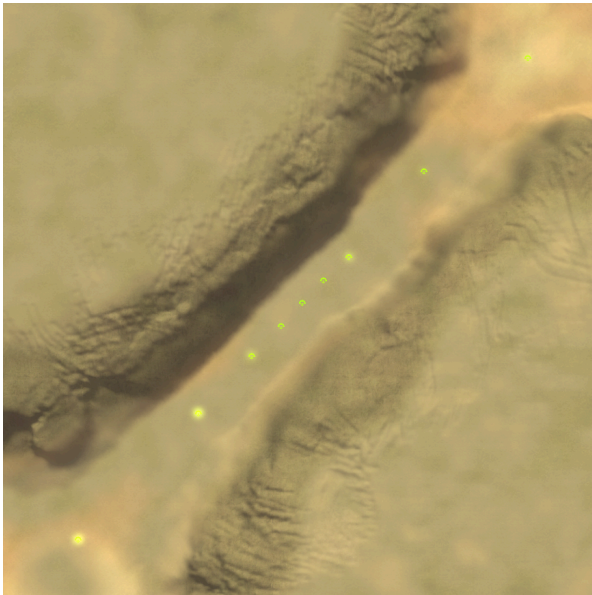
The ridges are marked with red. Not all ridges are large. The more ridges a map has, the less open it is. As an example, compare *Rigor Highlands* to *Open Wonder*:



The ridges are marked with red. Just by looking at them, you can see that Regor Highlands is a lot less open than Open Wonder is. This influences the strategies that a player can use. The more closed the map, the harder it is to have sufficient land presence.

Passage/choke point

A passage is a narrow passable area that has impassable terrain on two opposite sides. In general long stretches are called passages (think valleys in real life) and short ones are called choke points.



Passage on Battle for Thermopylae



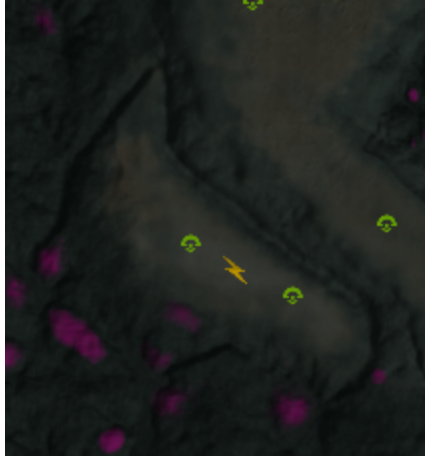
Choke point on Gap of Rohan

All narrow terrain features (including eg. isthmuses) influence gameplay in several ways:

- They act as bottlenecks making it slower to move large armies across
- At the entry/endpoints of passages an army waiting outside of the passage will be able to get a surface area advantage on the units emerging from the passage. This means that more of the units on the outside will be able to shoot at the same time, granting them a potentially devastating advantage in battle

Plateaus and Craters

Buildable land area that is completely surrounded by impassable ridges and is higher than the surrounding terrain. Land units cannot traverse without the use of transports.



Adaptive crateria



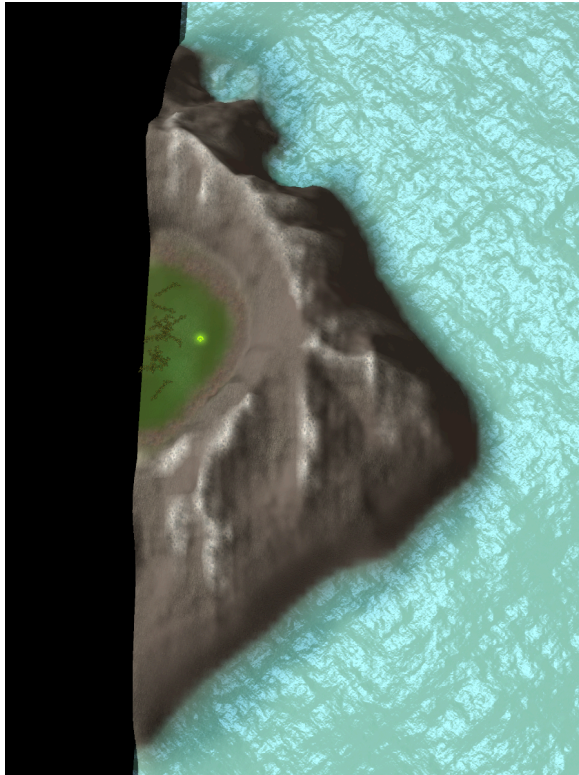
Mapgen



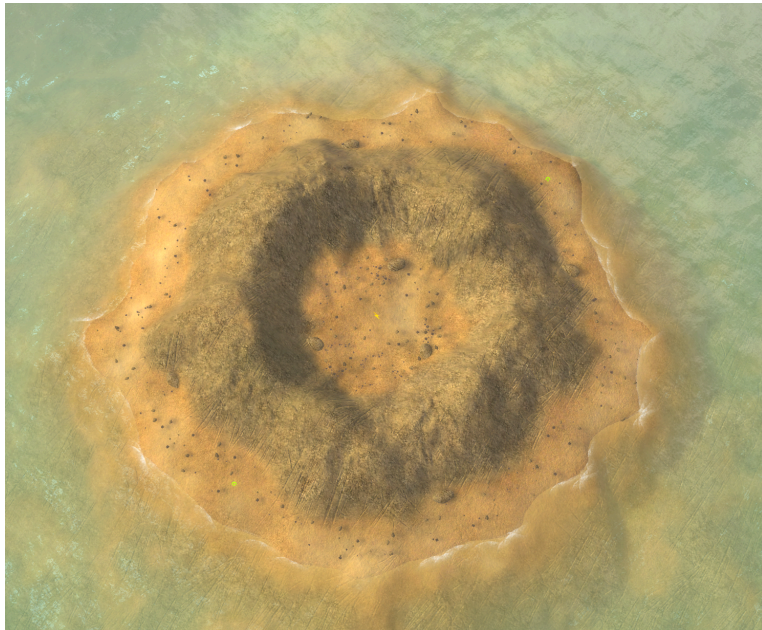
Hargreven

Craters are inverse plateaus, buildable land area surrounded by impassable ridges that are lower than the surrounding terrain.

Craters are similar to plateaus except they are circular and surrounded by impassable ridges. Craters are usually more defensible than plateaus since the ridges can block shots from the outside.



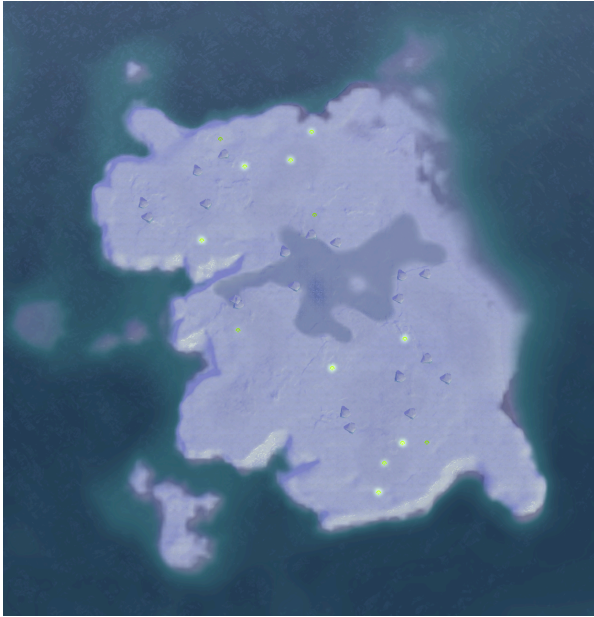
Crater on Skellige



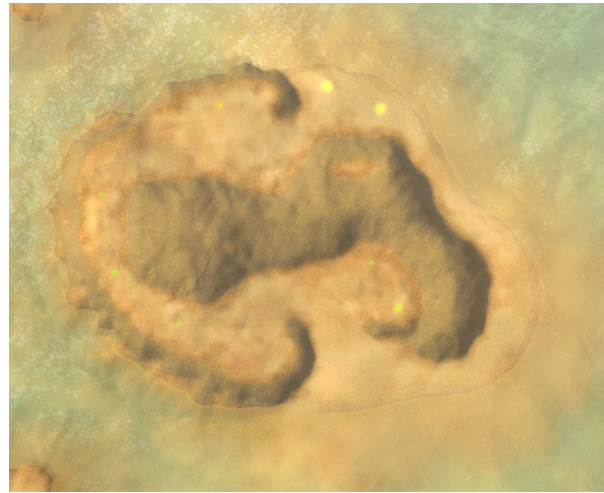
Crater on Osiris

Islands and islets

Islands and islets are land-masses fully enclosed within a waterbody. Islands are large enough for two opposing players to contest them with a land proxy. Islets are smaller islands that do not have enough space for proxy battles.



Island on Seraphim Glaciers



Island on Osiris



Islet on Skellige



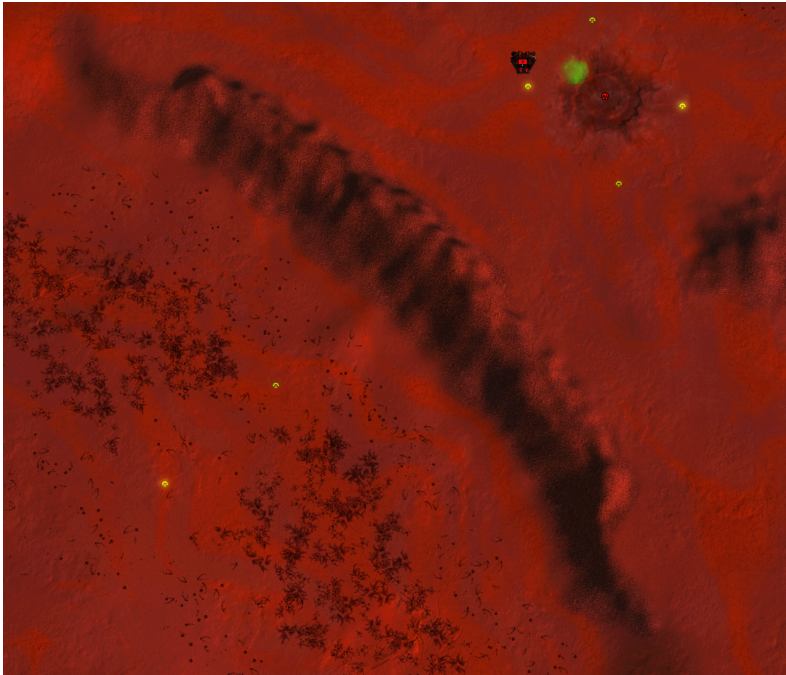
Islet on Osiris

Mountain



A terrain feature that blocks land units from passing and in some cases is so high that it affects air behavior. Mountains can cause bombers to overshoot their target, and

especially tall/steep terrain can cause planes to travel improperly (ie: bump into the side of a mountain).



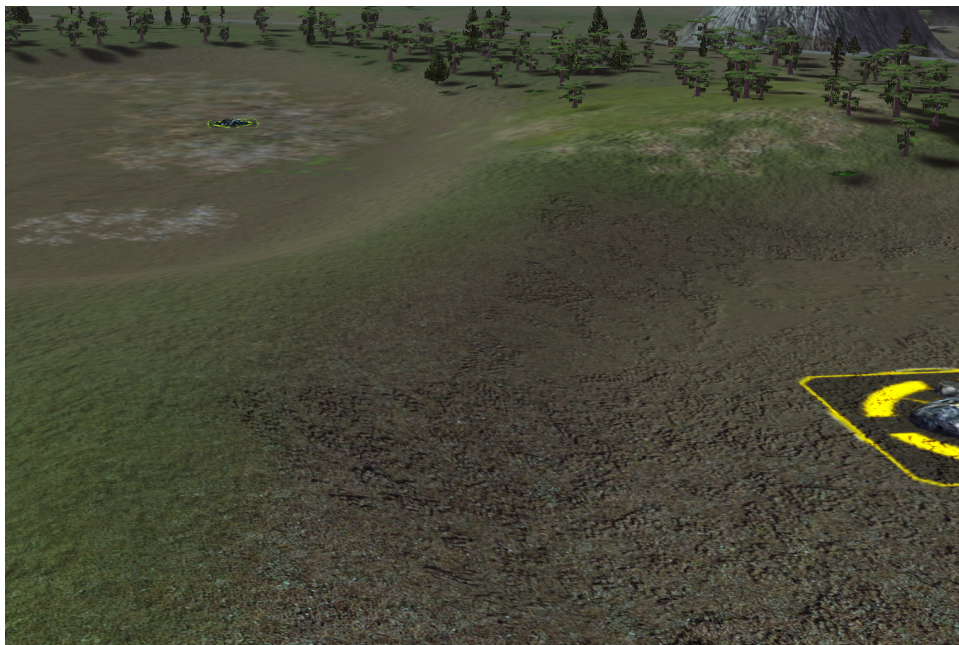
Mountain range: Vya-3 Protectorate

Hills & ramps

- Passable terrain that allows ground units to travel between two areas of different height (as opposed to ridges, which are impassable)
- Can block projectiles
 - Mess with long range direct fire weapons like auroras' and snipers'



Ramp on Regor VI Highlands



Hills on Regor VI Highlands

Water Bodies (Pond/Lake)

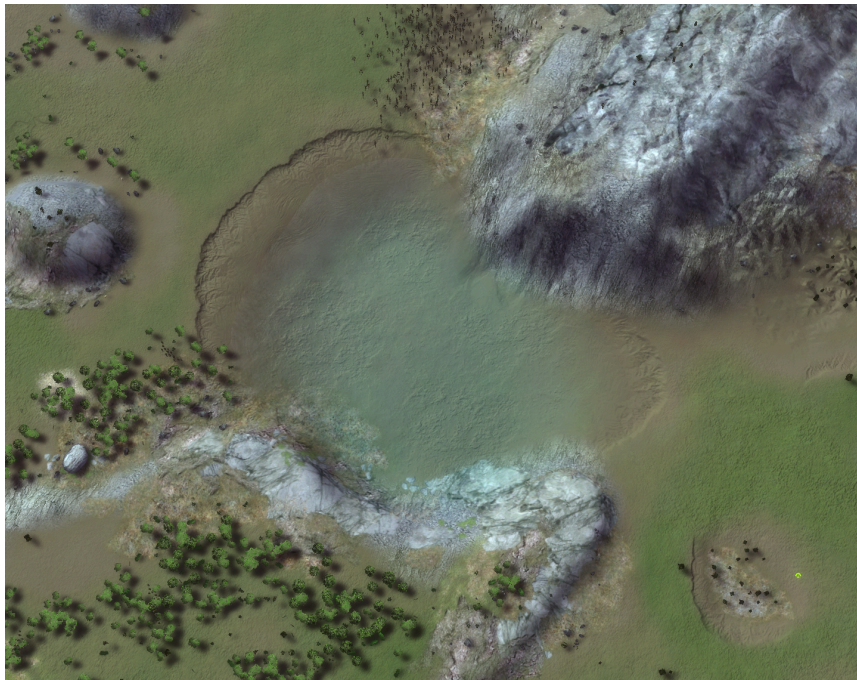
Pond

A pond is a small body of water surrounded by land. Ponds can be subdivided into deep and shallow ponds based on whether you can fully submerge an ACU in the water.

Deep ponds are used as ACU safe spots to reduce game volatility. However, be mindful of placing resources close to ponds, because hidden submerged units can be quite annoying to deal with.

Since waterbodies block pathing of (non-amphibious/non-hover) land units, they are often used to block pathing similarly to how ridges and mountains are. However, an excess of water bodies can give an unfair advantage to factions with certain hover units, especially Seraphim (Zthuee) and Aeon (Aurora). In particular, one should avoid placing extractor build sites near small waterbodies such that a Zthuee could fire at them while staying out of range of any T1 tanks.

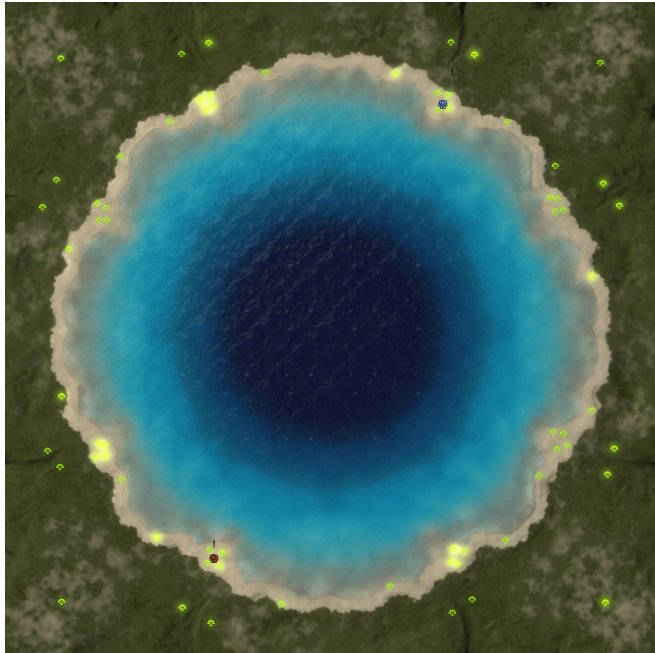
Shallow waterbodies in general don't have use cases beyond creating raiding opportunities for amphibious/hover units.



Pond on Regor VI Highlands

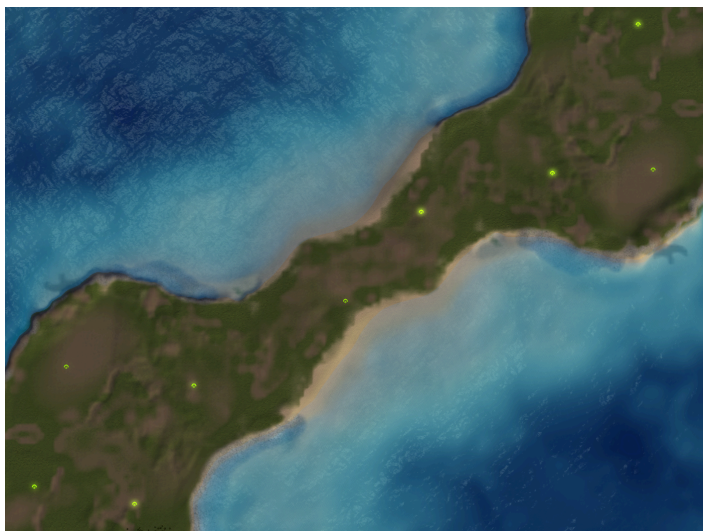
Lake/Ocean

- Big enough for naval fights
- Usually completely submerges amphibious units and shields them from splash damage at the surface.



Lake on Hanna Oasis

Isthmus/landbridge?



Isthmus Seton's Clutch

A passage surrounded by water that is so narrow that navy can assert control over land movement through it.

Peninsula?



Peninsula on Selkie Isle

Water-ramp/beach

Terrain-water transition that is gradual enough for units to get in and out of the water.

- Required for amphibious/hover units access to water, including engineers although distance building is also possible.



Beach on Seton's Clutch

Water cliff

Land-water transition that is impassable for amphibious/hover land units to get in and out of the water.

- Naval factories can sometimes be cliff built from the land in order to access the water.

[Water cliff on Stella Maris]

Reverse Expansion Hill / Mountain (by Morax)





Map: Amoor By: Chosen

The “reverse expansion” feature is a complicated one in that it gives a short distance place for a player to move and grab resources with the caveat that a direct land path is lengthier than a drop. Features such as these give a place for opponents to possibly push and create a frustrating hold on intel, air denial, etc to a player.

It unfortunately requires a lot of terrain features to get right but with the appropriate design it can become a powerful, driving feature that makes a map stand out gameplay-wise compared to other maps.

Miscellaneous features

Civilian structures

Civilian structures primarily exist to provide reclaim and are usually a point of contention.

Civilian structure can be neutral or hostile, or both can be mixed together.

Neutral civilian base example:

[Mapgen civ base preset]

Hostile civilian base example:

[Thermal Springs island base]

Hostile civilian structure with neutral civilian structure example:

[Vya-3 mid base]

Special cases

Loki civilian structures have a map script that makes it so that they don't give reclaim like they normally do, however, this is discouraged due to being inconsistent and unintuitive for new players. Similarly, civilian structures can be made to be uncapturable/invulnerable, but this is generally discouraged unless it's a clear map feature:

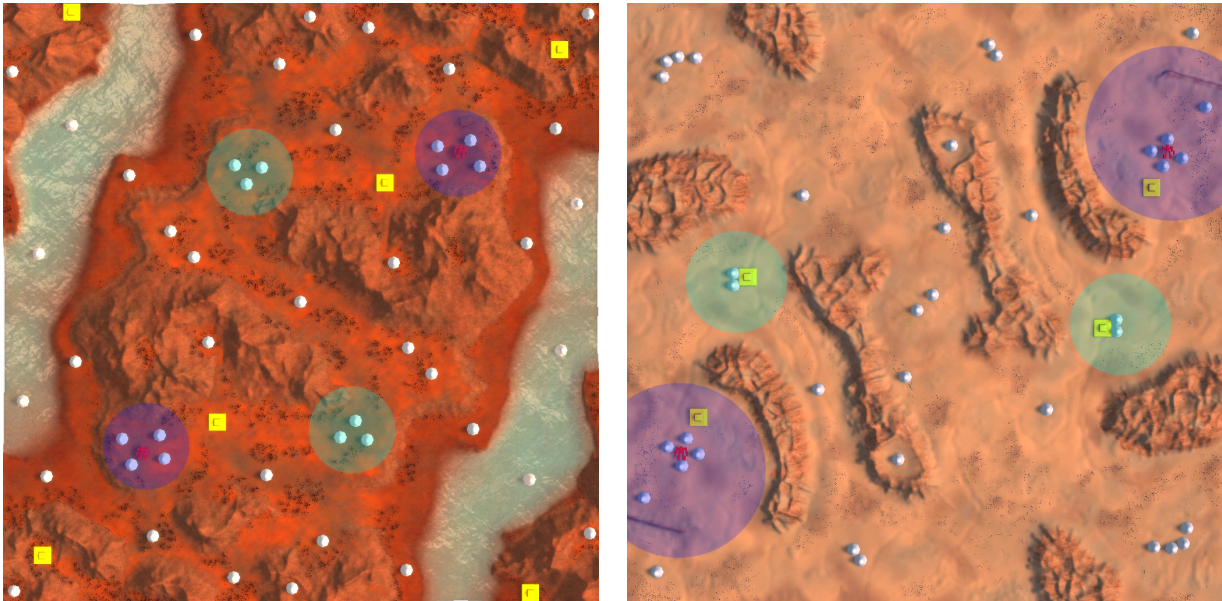
[Loki mid base]

Invincible civilian structure example

[Hardshield Oasis mid base]

Landmarks

A landmark is an intuitive location of interest. These are used to guide the player into what they should be doing in the first few minutes of the game. We'll discuss (... , todo)



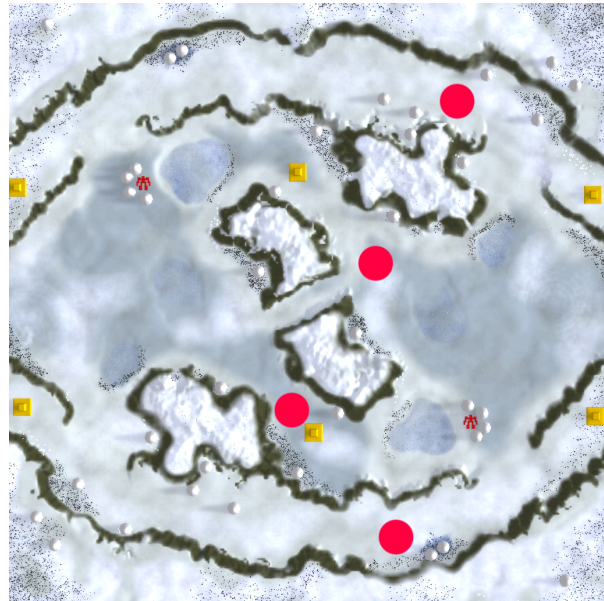
Spawn

The location where a player spawns is considered safe. It usually has 2 - 5 extractor build sites and an optional hydrocarbon plant build site. The majority of the extractors build sites should be within the build range of the ACU.

Resources that are near the spawn location are considered safe too. These are usually difficult to raid as the player will have a lot of intel and presence surrounding its spawn.

Expansions

A grouping of 3 or more extractor build sites.



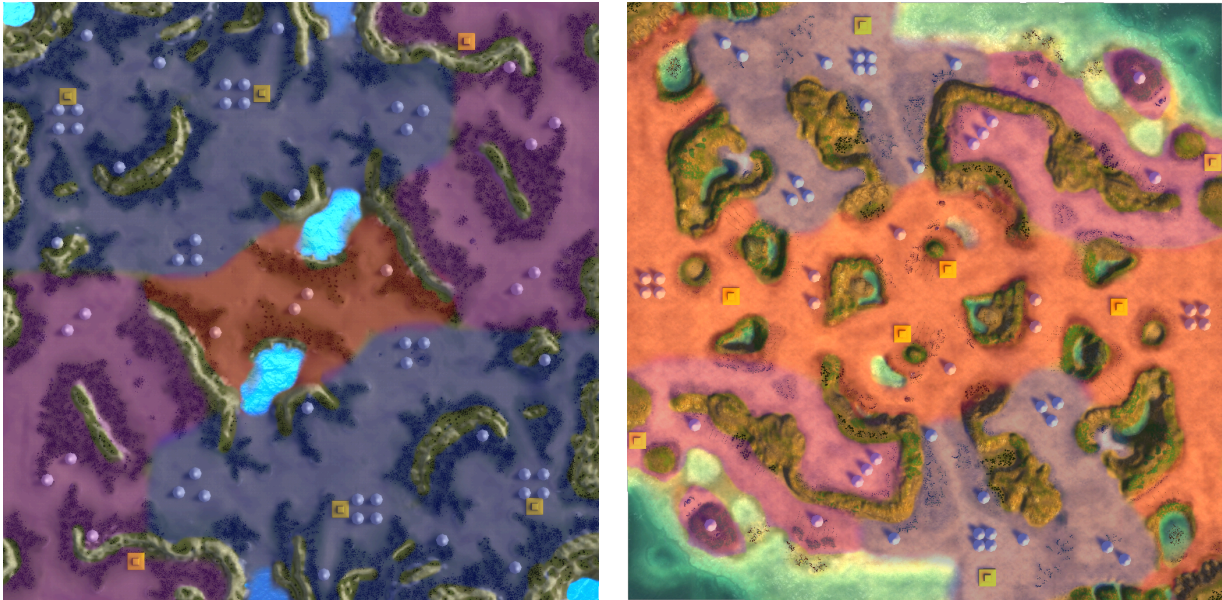
This last is difficult to put into words, therefore we'll use two examples again.

Defense points

The idea of a defense point is that they hold great strategic value. By fortifying this one location you significantly reduce the impact of raiding parties. Usually these locations are fortified by static defenses or by units. They can also act as natural rally points.

Zones

A terrain zone is defined by the height map, resource distribution and reclaim. A zone can change as the game evolves. A zone is usually bound to a specific layer, such as *land*, *amphibious*, *air* or *naval*. We'll mention these as they become relevant.



To make it easier to understand we'll start with two examples that you can refer back to while reading this chapter. The blue colors represent **safe zones**, the purple color represents **raidable zones** and the red / orange represent the **contested zones**.

Safe zones

Players choose to build production based on a few criteria:

- Concentration of mexes
- Where they can easily get engineers
- Where it's relatively safe from the enemy (shorter distance from the rest of your production, than the enemy production)

Any location that is near production is fairly safe. The more production, the safer that location is. Additionally any location that is near a rally point path gets additional safety.

These zones have resources that are close to production. The zone encapsulates your starting location and early expansions. The expansions are safe because they too will contain factories.

These zones have resources that are close to production areas, while being relatively far away from your opponents.

Meaning either the player starts there, or the player makes an expansion nearby. They are safe because the player either starts there, the resources are in the path of reinforcements or the resources are near an expansion area. As an example for Archsimkats Valley, the outer clusters of three extractors are also safe because the ACU is guaranteed to go there.

Raidable zones

These zones have raidable resources that are more isolated and easy to get to for your opponent. At the same time they are not trivial to defend. They are far away from the path of reinforcements and factories are not nearby. They are usually not worth defending with a point defense because the return on investment is too low.

Contested zones

These zones contain resources that take both teams the same amount of time to reach, but only one team can actually have them.

Dead-zone

This last category of zones usually has little value in the game. They do not contain resources and the amount of reclaim is not significant enough to fight over. They are only used gameplay wise for maneuvering and surprise attacks, or to make the gameplay area smaller than the map is for aesthetic purposes.

Cobalt Valley for example is technically a 10x10 but plays like a 5x5 due to the dead-zone.
[Cobalt Valley deadspace]

These zones are not represented in the two example maps.

Reclaim

- Reclaim speeds up earlygame scaling, without changing the amount of mass in the lategame

Mass reclaim chunkiness

- Bigger chunks get reclaimed faster since there's less engineer movement → more worth the engineer time making reclaim more important
- Bigger chunks have more reclaim per reclaim order → easier to manual reclaim / less apm intensive

Chunk sizes:

- Gigachunks (300+ mass)
 - Worth bombing to destroy enemy reclaim
- Big chunks (30-300 mass)
 - Generally worth redirecting engis to reclaim them
- Medium chunks (10-30 mass)
 - Generally worth manual reclaiming = apm tax
- Small chunks (5-10 mass)
 - Sometimes worth manual reclaiming
- Tiny chunks (<5 mass)
 - Not worth manual reclaiming (no extra apm tax)

Mass reclaim density

- Areas with dense mass reclaim are important points of contestation
 - Same rules apply as with mex placement: reclaim that is equally away from both players' production is contested by nature, and generally only one player will be able to get a bite out of it. Ie. whoever wins the battle over the contested reclaim area gets an advantage proportionate to the amount of reclaim. For this reason it is advisable to avoid large amounts of contested reclaim.

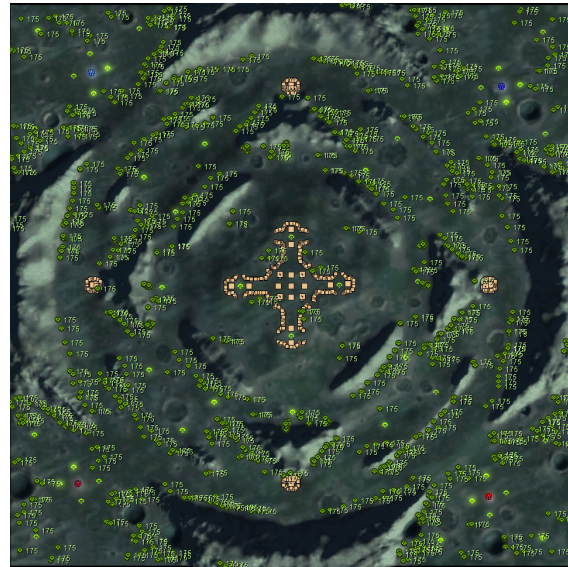
Mass reclaim amount

Note: in the examples only medium chunks and larger are counted.

Extreme

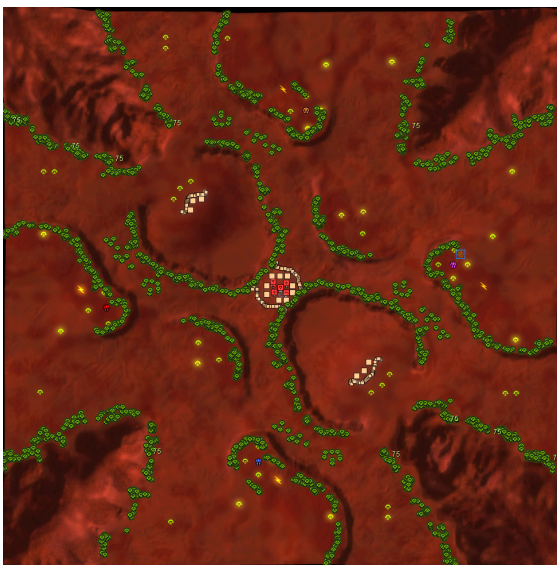


The Ditch: 435k reclaim

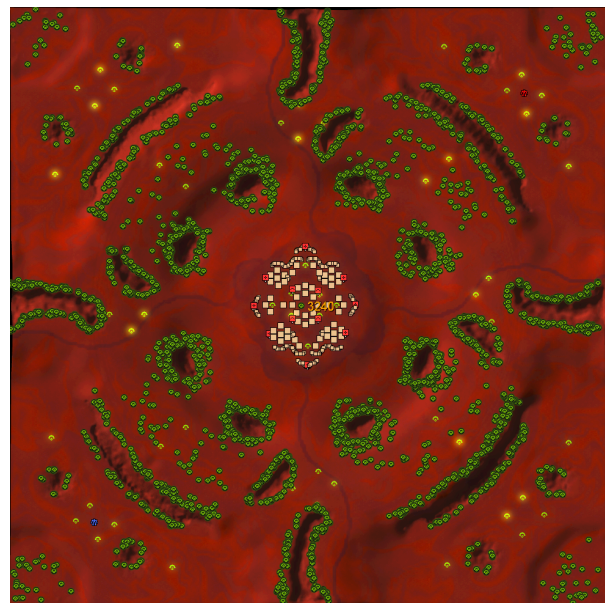


Daroza's Sanctuary: 143k reclaim

Large



Syrtis Major: 23.6k reclaim (not counting quantum gateway)

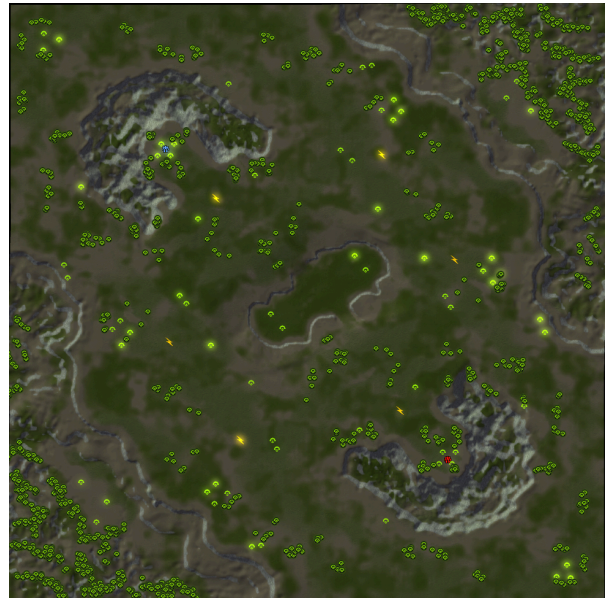


Vya-3 Protectorate: 63.7k

Medium

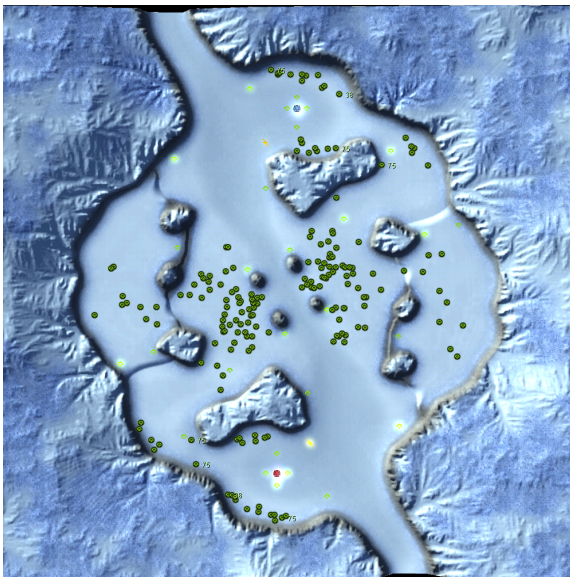


Arcane: 7.36k reclaim



Open Palms: 16.3k reclaim (but 10k is somewhat inaccessible in the plateau trees)

Low



Cobalt Valley: 2.29k reclaim

Hargreven: 3.71k reclaim

Trees

- Single trees are never worth reclaiming, but can be used to slow down attack move reclaim
- Tree groups with single trees interspersed forces manual reclaiming as they can't be effectively factory attack moved
- Tree group breaking
 - Try to avoid adding tree groups in common engineer/unit paths



- The more tree groups there are the more punishing breaking them becomes
- Spawn tree breaking
 - Place tree groups far enough from spawn locations so that the spawn explosion doesn't break them

Dominant strategies

A dominant strategy is a term used in game theory to describe a decision that always leads to the best payoff for a player, no matter what the other players do. A rational player will always play his dominant strategy.

A map can dictate a dominant strategy via its terrain features, resource distribution and reclaim distribution. In this chapter we describe common patterns that guarantee a dominant strategy, and therefore that you likely want to avoid.

Note that this chapter uses the vocabulary as introduced earlier.

Transport rush

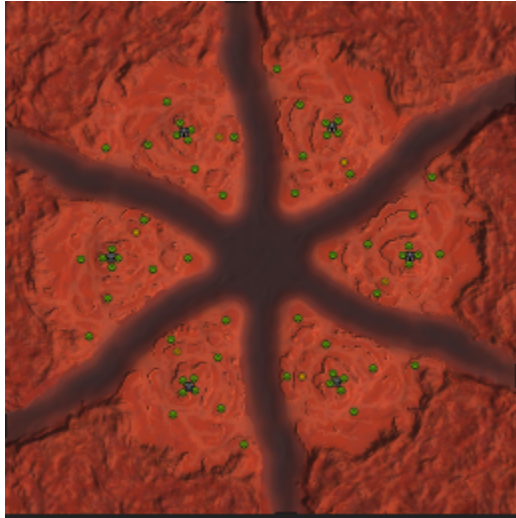
Example: Point of reach



Viabel build orders:

You can either rush interceptors or a transport, and games will often be decided for a large part in the first 4 minutes because of it. Is your transport shot down because the opponent's interceptor luckily found it? You are already way behind.

Example: Crossfire Canal



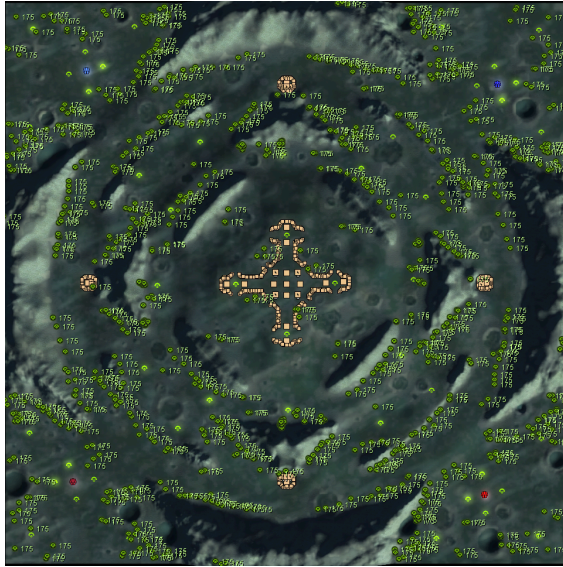
Viable build order: Same here. Because there are contested islands to grab early on you must either rush inties or a transport and the game becomes very swingy.

Example: Chiron



Viable build orders: Because most of the resources are on the main island, you need to immediately drop middle on this map. It is a little less swingy than Crossfire Canal and Point of Reach, because the distance between the two starting bases is a bit larger and you can usually manage to drop the main island in spite of early interceptor aggression by your opponent, because the distance to the main island is not that large. In the worst case scenario that your transport is shot down, you can still walk your ACU to the main island to establish a foothold there. This makes Chiron a little better in terms of swingy starts.

Example: Daroza's Sanctuary



Crazy Strategy = proxy in mid and capture T2 pgens

Normal Strategy= Rush to one side take it and grab the tasty reclaim

Additional examples:

- Seraphim Glaciers
- The Bermuda Locket
- Roanoke Abyss
- Skellige
- Pelagial
- (every 20x20 map basically)

[how the map features encourage certain behaviors]

Frigate rush

Example: White Fire

[image]

[viable build orders]

Example: Adaptive Intertemporal

[image]

[viable build orders]

[how the map features encourage certain behaviors]

Early-game land

Example: Desert arena

[image]

[viable build orders]

[how the map features encourage certain behaviors]

Example: Zeuthea Valley

[image]

[viable build orders]

[how the map features encourage certain behaviors]

Late-game land

Example: Fields of Isis

[image]

[viable build orders]

Example: Syrtis Major

[image]

[viable build orders]

[how the map features encourage certain behaviors]

Raiding into tech

Example: Badlands

[image]

[viable build orders]

Example: Twin rivers

[image]

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Fast scaling

Example: Daroza's Sanctuary

[image]

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Example: The Ditch

[image]

[viable build orders]

[how the map features encourage certain behaviors]

Choke points

Example: Dual Gap

[image]

[viable build orders]

[how the map features encourage certain behaviors]
