



**XPRIZE**  
**WILDFIRE**



GORDON AND BETTY  
**MOORE**  
FOUNDATION

## Track A: Space-Based Detection and Intelligence

Round 2: Semifinals System Technical Verification

Rules and Regulations v1.0

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# Introduction

These Rules and Regulations are issued for the Semifinals System Technical Verification (STV) of XPRIZE Wildfire Track A: Space-Based Detection & Intelligence. This R&R is to supplement the [Competition Guidelines](#) (originally published April 21, 2023, superseded by Version 2.1 as of March 4, 2024). While the Guidelines remain in full effect as the primary document governing the competition, at each round of the competition, this R&R is published to provide necessary operational details specific to that round of the competition.

These Rules and Regulations detail the concept, requirements, constraints, boundaries and directives of the STV. All teams must adhere to this R&R at all stages of the STV while they are actively participating. Failure to adhere to these R&R may result in consequences as detailed in the Competitor Agreement.

XPRIZE may revise these Rules and Regulations at any time during the course of the competition to provide additional information or to improve the quality of the competition. Future versions, amendments, technical notes, or other documents may continue to elaborate on the operation of the competition, including exact dates and locations of events, specific technical thresholds for performance testing, and operational information. XPRIZE will make all final determinations on safe and acceptable operating conditions for the competition. XPRIZE reserves the right to disqualify teams who are found to be operating in an unsafe or unethical manner, whether at official testing sites or at their own facilities.

All competing teams will be notified of revisions in a timely manner. Official updates will be communicated to team leaders by email. Submit any questions using the [Team Questions Form](#), and send written communications to [wildfire@xprize.org](mailto:wildfire@xprize.org).

For the most updated version of the Rules, check [xprize.org/wildfire](https://xprize.org/wildfire) and always remember to replace your files with the most recent versions of official documents.

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# 1. Test Plan

## 1.1. Introduction

The XPRIZE Wildfire Track A: Space-Based Detection & Intelligence Semifinals System Technical Verification (STV) represents a significant stage in the competition where teams are required to demonstrate their advanced and innovative solutions for detecting, characterizing and sharing observations of wildfires. The testing process is structured to offer a fair, thorough, and practical evaluation of the teams' solutions. This approach will also yield valuable observations and feedback for the teams, the panel of judges, and ultimately, the broader wildfire community.

The testing concept for the XPRIZE Wildfire Track A Semifinals STV involves gauging the analytical competence of teams' solutions in terms of the precision, accuracy, speed, and dependability of wildfire detection and characterization.

## 1.2. Objective

Teams are reminded of the end goal of XPRIZE Wildfire Track A. In the Space-Based Wildfire Detection & Intelligence track, teams will have one minute to accurately detect all fires across a landscape larger than entire states or countries, and 10 minutes to precisely characterize and report data with the least false positives to decision-makers on the ground.

STV is focused on the analytic portion of solutions, as competing teams will be asked to demonstrate the analytical strength of their proposed solutions. The assessment of team solutions will be carried out through the submission of data materials, with no outdoor testing occurring in this round.

## 1.3. Overview

The STV is conducted, per team, over a 12 hour real-time period. The STV consists of a number of test serials which are designed to test the analytic portion of teams' solutions. For each test serial, teams will be given a target time and location. Teams are then responsible for sourcing the data they require, analyzing the data and providing reports and intelligence to a level that would be expected of a fire management agency. In order to preserve competition fairness, XPRIZE will not notify teams of the number of target locations and or time of desired observations prior to the STV window opening. XPRIZE will, however, ensure that teams have adequate time to produce the required analytics.

To support XPRIZE Wildfire, Esri will provide their ArcGIS Online system to teams for the purposes of data transfer and data storage, and to provide to all teams an example of an industry-standard geospatial information system. To support integration with ArcGIS Online, Esri

and XPRIZE Wildfire will provide ArcGIS Velocity, which is a cloud-native add-on capability for ArcGIS Online. It enables users to ingest data from the Internet of Things (IoT) platforms, message brokers, or third-party APIs. Where teams are receiving data from their own systems, integration with ArcGIS Online is still required. Teams planning on submitting data into ArcGIS Online via API will have the option of leveraging ArcGIS Velocity, a real-time engineer, to stream data into the XPRIZE ArcGIS Online Organization. Should a team not wish to utilize Velocity to submit their data, that team will be responsible for making their data available within the XPRIZE ArcGIS Organization in an alternate manner.

Teams will be required to deliver data to ArcGIS Online, which will enable testing to be conducted in a standardized, equitable environment which is also representative of a real-world platform. Teams will be provided ample opportunity to scope, assess and integrate their systems with Velocity. The integration with this platform places the onus of integration on the team, however, does so in a fair and equitable manner.

To support onboarding with ArcGIS Velocity, XPRIZE and Esri will facilitate a non-judged functional exercise during the August 29–31, 2024 Team Summit in Melbourne, Australia. XPRIZE and Esri will be on hand to walk through the STV process to build familiarity and to address potential friction points.

#### **1.4. Test Methodology**

The System Technical Verification is designed to assess the analytic capabilities of teams within the constraints of being a simulation event. Teams will be hosted on Esri's ArcGIS Online platform. This tool allows for data aggregation across a wide range of sources, and enables AI-driven analysis across a range of inputs, ultimately empowering teams to provide the most detailed analysis to XPRIZE as possible. The test design mandates minimum requirements in line with the Competition Guidelines, but also encourages teams to think in an operational context and deliver value-add data throughout.

Commencing at the start of their test window, teams will receive target information consisting of a location and time of observation. Teams will then search through historic Earth Observation (EO) records and determine what data are available to them. **Later, teams will receive subsequent notifications which refine these target dates and locations.** At each notification, teams will be refining their models and reporting. After the last notification, teams will provide XPRIZE with their analysis. This will be a .csv file containing the minimum required information on the fire(s) observed, including observed behavior and size-up information. To attain additional points teams may provide any further analysis which may be of benefit to fire managers. Teams are reminded of the real-world operational context of their data, and are recommended to provide detailed analysis and intelligence which would be of benefit.

## 1.5. Test Logistics

### Date & Time

Semifinals System Technical Verification is currently scheduled for April 2025. Exact testing dates and assigned testing times will be announced to teams by March 1, 2025.

### Location

Semifinals STV will be conducted as a remote/virtual activity. At the time of publication, XPRIZE does not envisage a need for teams to be physically colocated with judges for STV, however, XPRIZE reserves the right to have a representative, judge or other designated individual(s) visit teams in-person and or virtually during the testing window. Advanced notice will be provided prior to visit. Teams may choose to colocate based on their individual composition or system requirements, but this is at the discretion of each competing team. The XPRIZE Wildfire Operations Team will be colocated in order to standardize test conduct, scoring and administration, however the location will not necessarily be published to teams.

### STV Test Platform

Semifinals STV will occur on the ArcGIS Velocity platform. Prior to STV, all teams will establish relevant accounts with Esri, which will be facilitated by XPRIZE. ArcGIS Velocity functionality for testing will be provided at no cost to teams.

## 1.6. Testing Assumptions and Artificialities

In any testing, assumptions and artificialities may be necessary to complete testing in the time allotted and/or account for logistical limitations. Testing participants should accept that assumptions and artificialities are inherent in any testing, and should not allow these considerations to negatively impact their participation.

### Assumptions

Assumptions constitute the implied factual foundation for the Testing and, as such, are assumed to be present before the testing starts. The following assumptions apply to the testing:

1. **Global data.** The locations for observations will be drawn from across the globe. This is done for a variety of reasons but ultimately to ensure that the winning system is truly able to provide global EO wildfire data, aligned with XPRIZE's vision and that of supporting sponsors.
2. **Live Fire Behavior Intelligence:** While critical to informing action, fire behavior cannot be measured accurately in real-time and is estimated on-site by wildland firefighters. Teams will generate a comprehensive characterization of fire behavior including perimeter, direction and rate of spread, and intensity in different parts of the fire.
3. **High-Resolution Detection:** Current fires visible from space are too large for effective response. Teams will demonstrate the ability to detect fires 10m<sup>2</sup> in size and smaller, toward 1m<sup>2</sup>, while drastically cutting the false positives rate to 5%.

4. **Atmospheric conditions.** Wildfires involve inherently complex weather patterns. The selected EO locations may contain smoke and clouds. Post-ignition, fire-generated thunderstorms and pyrocumulonimbus clouds may obstruct direct observation of wildfires. Teams should expect and prepare for complex atmospheric conditions to be present in the historical data.
5. **Complex terrain.** Wildfires are prevalent in areas with steep terrain and dense vegetation. These characteristics inherently complicate the ability to directly observe ignition and fire behavior. Teams should expect and prepare for complex terrain to be present during EO.
6. **Terrestrial communications.** Due to the sheer number of fire agencies across the world, it is extremely challenging to standardize communications systems, and impractical to impose a single terrestrial communications system on all agencies. In order to reduce complexity and to standardize competition outputs, the boundary of Semifinals is deemed to be the delivery of data to an XPRIZE portal. This may be achieved through direct integration with the portal or by proprietary API. XPRIZE assumes that delivery to this portal represents the final practical stage at which communications protocols can reasonably be assumed to be standardized.
7. **False positives.** False positive readings (the misidentification of a hot object or surface as a fire) detract from current EO systems. False positives may result in misdirected resourcing (deploying firefighters to a rooftop solar panel) or the over-analysis of such an observation by a dispatch center. Reducing false positives contributes to the efficient use of resources by fire agencies. Teams should expect and prepare for false positives to be present during EO.
8. **Near Real-Time Data:** Wildfire observation is inherently time-critical. Teams should anticipate the realities of space-based EO and plan accordingly.
9. **Esri integration.** Prior to STV, teams will be empowered to liaise with Esri in order to develop the necessary API or other integration method. XPRIZE assumes that at the commencement of STV, teams are fully integrated with Esri and that technical support during testing is not required.
10. **Notification of Targets.** The targets consist of two facets: temporal (when) data, and location (where) data. For each serial, numerous notifications will be issued, known as “N”. Each notification refines temporal and location data for the observations in question, however, teams should not wait for all notifications to occur to commence analytics and reporting.

### **Artificialities**

The Semifinals System Technical Verification does not include an outdoor live fire test. Instead, this competition milestone relies on historical fires to challenge the analytical capabilities of teams. Some of the data, including EO data, used for STV is already available. The design of the STV acknowledges this as a constraint, and challenges teams to provide step-change improvements to analytics. To be explicit, this artificiality means that XPRIZE will be expecting to see better interpolation, accuracy, precision and modelling of fires. XPRIZE expects that data will be faster and more usable for fire managers, as this is where the user community will see tangible improvements to the status quo.

### 1.7. Test End State

The testing end state is to ensure that the teams' solutions have the necessary tools, methods, and procedures that can effectively process, arrange, and scrutinize EO data to obtain and share crucial wildland fire insights.

### 1.8. Preparing for Testing

Teams should keep in mind the following points while preparing for the STV:

1. **XPRIZE will not provide any EO data during testing.** EO data can be sourced from any applicable and legal EO source. The STV is designed to prepare teams for the CompetitionFinals, where teams are responsible for their own EO data. For the purpose of focusing on analytics, teams have access to the same suite of publicly and professionally available EO data.
2. Teams must ultimately show proof that all the testing data they analyzed must be from space (100km+).
3. Teams should expect and prepare for real-world EO challenges, such as weather conditions (lighting, shadowing, time of day, smoke, clouds, and temperatures), land conditions (different terrains and landscapes), different fuel types, and false positives.
4. **To repeat, the locations used for STV observations will be drawn from around the world.**
5. The STV is a simulation of a real-time environment. Teams will be asked to deliver data at 1 minute (initial observation), 10 minutes (initial characterization) and 15 minute updates throughout the test window. These timings are representative of real-world timing sought by fire agencies worldwide.

– End of Test Plan –



## 2. Rules and Regulations

### 2.1. Earth Observation Data Rules

The following rules constrain the source data types. The rules are established to provide realism for all teams and to enable fair and equitable judging.

<b>Rule 1 Observation from Space</b>	
<b>Description</b>	Observations of wildfires shall be made from Space. Of note, Space is defined as an altitude of 100km above sea level (the Kármán line) or greater.
<b>Rationale</b>	Earth Observation data could potentially be obtained from any altitude. XPRIZE (and partners) has identified that a major gap in global capability exists in low-latency, high accuracy space-based wildfire detection. To be explicit, HAPS, HALE, or other platforms obtaining EO data from lower than 100 km are excluded. Teams may use any EO data in order to train their systems prior to STV, but such data cannot be used during STV testing.

<b>Rule 2 Legally-sourced data</b>	
<b>Description</b>	Earth Observation data shall be received legally and with the knowledge and permission of the source of the EO data.
<b>Rationale</b>	<p>Whatever method teams select to source their EO data, the source of this data must know and give permission for this data to be used for this competition. No team is to hack or otherwise obtain data unknowingly from 3rd party sources.</p> <p>Failure to adhere to this code of conduct would be a violation of the Competitor Agreement. Teams should refer to the Competitor Agreement section 11.1.5 and Guidelines section 5.</p>

<b>Rule 3 Declaration of EO Sources</b>	
<b>Description</b>	Teams must declare their EO data sources in their STV submissions
<b>Rationale</b>	<p>When delivering analytic results of their observed targets, teams must openly declare what sources were used to reach these findings.</p> <p>Information to be provided must contain, but is not limited to: name of the satellite/spacecraft, altitude at time of observation, payload type, spectral information including resolution and range, spatial information (pixel element size), radiometric information including last known calibration.</p>

## 2.2. Integration Rules

For the purpose of data transfer and sharing during STV, teams will be required to integrate with the [Esri ArcGIS Velocity](#) platform. Teams will be provided ample opportunity to scope, assess and integrate their systems with Velocity. The integration with this platform places the onus of integration on the team, however, does so in a fair and equitable manner.

When addressing integration Rules, teams should maintain focus on end-user usability of data. Teams should endeavor to provide user-friendly intelligence; post-processing of data by the end user is suboptimal and this will be reflected negatively in scoring.

<b>Rule 4 XPRIZE-Provided Testing Platform</b>	
<b>Description</b>	All teams shall use the <a href="#">Esri ArcGIS Velocity</a> platform during STV for data transfer and sharing.
<b>Rationale</b>	<p><a href="#">Esri ArcGIS Velocity</a> allows teams to ingest data via API and analyze real-time feeds. Teams are encouraged to familiarise themselves with Velocity and the broader ArcGIS platform. Teams will be responsible for integration with Esri Velocity, though Esri and XPRIZE will provide a common level of support to teams.</p> <p>If teams are planning to use other geospatial software (e.g. Mapbox, QGIS, Google or any proprietary software), teams must integrate this into ArcGIS Velocity. If teams are using manual downloads, emails, SMS or any form of push notification, they are responsible for providing XPRIZE with the relevant destination information. For example, if a team is using email push notifications, that team is responsible for providing XPRIZE with the email distribution list that XPRIZE needs to sign up to.</p> <p>Teams may submit data products in both or either raster or vector files, including multidimensional data. Any proprietary format must be integrated with ArcGIS and this integration is the responsibility of the team in question. XPRIZE and Esri will equally assist all teams with integration. However, XPRIZE must be able to provide equitable assistance to all teams without compromising the integrity of the competition. Teams are ultimately responsible for integration with ArcGIS, as this is an industry standard platform for EO and geospatial data dissemination.</p>

<b>Rule 5 End-user format</b>	
<b>Description</b>	Processed data (intelligence) shall be output by the competing team in an Open Geospatial Consortium (OGC) format.
<b>Rationale</b>	OGC file types are effectively the global standard in EO data and are used by fire and emergency management agencies broadly. Teams may choose to adjunct their data with information in other formats, however, submissions will be primarily assessed on GIS data.

	<p>All reporting is to use the International System of Units (SI) units. The SI comprises a coherent system of units of measurement starting with seven base units, which are the second (symbol s, the unit of time), metre (m, length), kilogram (kg, mass), ampere (A, electric current), kelvin (K, thermodynamic temperature), mole (mol, amount of substance), and candela (cd, luminous intensity).</p> <p>Ultimately the intelligence gathered by competing systems will be used by firefighters on a fireground. Teams should remain cognisant of this operational context throughout.</p> <p>Definition of OGC formats is available at <a href="https://www.ogc.org/standards/">https://www.ogc.org/standards/</a></p>
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Rule 6      Provision of API	
<b>Description</b>	Where required, each team is responsible for providing and integrating their API with the <a href="#">Esri ArcGIS Velocity</a> (Rule 4).
<b>Rationale</b>	<p>XPRIZE is providing a testing platform as a common platform for all teams to use. For some teams, this may require integration through the use of an API to ensure compatibility. Where this is required, this is the responsibility of the team to design and implement.</p> <p>XPRIZE and Esri may assist if required, however API design is the responsibility of the individual team.</p>

### 2.3. Timings and Reporting Rules

Teams will be given numerous notifications during STV, known as “N”. Each notification provides increased fidelity on the location and timing of required observation(s). The rationale is to continually refine observations, with the end result being tabulated analysis that can be compared and assessed. Teams are required to provide identification, characterization and ongoing updates for the fires in their observations.

The information required here by these Rules is the minimum standard. Teams are encouraged to exploit and promote their abilities within the provided platform to uplift the intelligence available to fire managers. Reporting that is in addition to the minimum information should value-add.

Rule 7      Identification	
<b>Description</b>	Teams shall detect all fires within the defined target area.

<b>Rationale</b>	<p>Fire location(s) and behavior (size, intensity, rate of spread, etc.) will be known to XPRIZE to aid verification and validation. Teams must provide the most accurate time and location of initial ignition possible.</p> <p>Teams are reminded of the Competition Guidelines whereby they have one minute to identify fires. Teams will be scored based on the accuracy of their initial detection of fires.</p> <p>The only mandatory requirement here is to identify the fire(s) while minimizing false positive reporting. Any additional information provided (for example, early characterization) will be treated as enhancing characteristics of the team's submission.</p>
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<b>Rule 8 Test window is maximum 12 hours</b>	
<b>Description</b>	Each team shall have a test window of twelve hours (real-time).
<b>Rationale</b>	<p>12 hours is representative of a typical fireground operational planning period. Teams will be required to continuously monitor all data feeds during this period.</p> <p>XPRIZE will ensure that all teams have a reasonable time in which to deliver all observations required, whilst demonstrating the capabilities of their system. The exact duration of the test window may be influenced by the data processing times and delivery to the XPRIZE portal by teams' systems. Once the test window closes teams will no longer have access to their data stored on the Esri platform. XPRIZE will take all reasonable steps to ensure teams have sufficient and appropriate time to provide insights for all test serials.</p>

<b>Rule 9 Reporting</b>	
<b>Description</b>	<p>Teams are to provide a .csv file of all fires identified and characterized. This must include the following information:</p> <ul style="list-style-type: none"> <li>● Time (UTC) of identification/detection</li> <li>● Time (local) of identification/detection</li> <li>● Time elapsed since identification (hh:mm:ss)</li> <li>● Latitude of fire</li> <li>● Longitude of fire</li> </ul>
<b>Rationale</b>	<p>The data required here is the bare minimum. Use of a .csv file type is to ensure a baseline for comparison by judges, but additional material is welcome, provided it can be transmitted via the Esri platform.</p> <p>Teams are strongly encouraged to include observed fire behavior (direction, rate, perimeter etc) and also encouraged to include predictive behavior.</p>

	<p>Teams are strongly encouraged to consider the types of data and the level of fidelity that is of most use to on-ground fire managers. Teams should consider what information should be delivered immediately, versus what can be delivered later for greater effect. Consideration should be given to reporting on aspects such as access routes, water sources, key infrastructure, obstacles and hazards, command and control considerations, forecast growth rates and patterns, terrain, fuel types and loads, current and future weather conditions and any other detail that may assist but not overwhelm fire management staff.</p>
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## 2.4. Administrative Rules

<b>Rule 10 Safety</b>	
<b>Description</b>	Teams must comply with local occupational health and safety (or equivalent) regulations and laws in their jurisdiction.
<b>Rationale</b>	Operational health and safety is a fundamental consideration within this competition. Teams are responsible for operating safely and in compliance with local, regional and national occupational health and safety regulations and laws. Despite STV being a primarily online activity, teams must comply with applicable regulations and laws.

<b>Rule 11 Cooperation with XPRIZE Wildfire</b>	
<b>Description</b>	Teams must cooperate with the XPRIZE Foundation and any official partner or representative to facilitate the conduct and verification of STV.
<b>Rationale</b>	<p>By entering into STV, teams acknowledge that communications and cooperation are fundamental to the conduct of a successful STV. XPRIZE may request information from teams directly, including cooperation with scheduling and logistic planning and provision of requested technical details and performance or analytic data.</p> <p>XPRIZE will make every effort to cooperate with STV teams, communicate proactively and accommodate each team's specific circumstances within reason. XPRIZE reserves the right to disqualify teams for lack of cooperation during this process as per the Competitor Agreement.</p>

<b>Rule 12 Developmental Check-ins</b>	
<b>Description</b>	Teams must complete all Developmental Check-ins in the lead-up to STV conduct.
<b>Rationale</b>	A Developmental Check-in is a scheduled event where teams are required to submit updates on their progress in designing their technological systems. Examples of

	<p>information teams may be asked to submit during check-ins include pictures, drawings, videos, narrative reports, proof of regulatory licensing and other applicable materials. Teams will be allowed ample time to prepare submission materials.</p> <p>XPRIZE Wildfire inherently involves TRL uplift from QTS through to Round 3 Finals. In order to provide assurance that teams maintain a competitive trajectory between QTS and STV, XPRIZE uses Developmental Check-ins. These submissions will be delivered via XPRIZE’s Prize Operations Portal (POP) where teams will be asked specific questions regarding the development of their systems.</p> <p>Whilst Developmental Check-ins are not scored, they will be used by judges to provide a level of confidence that the team is uplifting and on a trajectory to empower success in Round 3 Finals. As such, judges may use Check-ins to assess the viability of teams to continue competing at any stage.</p>
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<b>Rule 13      Business Plan</b>	
<b>Description</b>	Teams must complete a business plan in accordance with the XPRIZE-provided format.
<b>Rationale</b>	<p>Fundamental to the XPRIZE design is the ability to scale up prize solutions to contribute to global solutions. In this vein, teams will progressively build their business plan along with Developmental Check-ins.</p> <p>The purpose of the Business Plan is to set up teams for success in delivering a holistic, not just technological, solution to improving space-based EO support to wildfires. XPRIZE will provide teams with direction and guidance in developing this plan and this will be released alongside Developmental check-ins.</p>

### 3. Selection for Progression to Finals

The nature of STV means that teams will be ranked against each other. There is no minimum standard or cut-off that teams need to achieve to successfully progress through to Round 3 Finals. Despite this, teams should remain cognisant that Finals are a live-fire EO test which requires the integration of analytics with live EO data. Where STV is about the ability and capacity to quickly analyse largely existing data, Finals require these analytics to perform in real-time. Teams should use STV to demonstrate the full capabilities of their system, highlighting those areas in which your system provides a step-change in capability.

STV provides an assessment of analytic capability of teams’ solutions. XPRIZE will use STV results, in concert with Developmental Check-ins, to make determination as to which teams

progress to Finals. Only those teams with a chance of success at Finals will be allowed to progress.

### 3.1. Test Assessment Criteria

Teams will be scored based on the accuracy, precision, and timeliness of their insights. As a guide, teams are reminded of the following metrics, summarized from the Competition Guidelines (Section 3.5) and information provided during QTS:

<b>Rapid</b>   Data acquisition	Data Capture Time	<b>Screening<sup>1</sup>:</b> Within $\leq 1$ min
	Reporting Lag	<b>Screening + Scoring<sup>2</sup>:</b> $\leq 10$ min, points toward (near) real time
	Update	<b>Screening:</b> Every 15 minutes over 12 hours
<b>Accurate</b>   Quality of observation and intelligence	Resolution (fire size)	<b>Screening:</b> Detects all fires measuring $\geq 10\text{m}^2$ across the designated area in all tested temporal and environmental conditions.  <b>Scoring:</b> Points for the detection of fires $< 10\text{m}^2$ , toward $1\text{m}^2$ .
	Characterize the fire	<b>Scoring:</b> Upon detection, characterize fire behavior: perimeter, direction and rate of spread, and intensity in different parts of the fire. Additional points towards comprehensive Fire Size-Up characterization including access to fire location, surrounding fuels, and values at risk.
	False Positives Rate	<b>Screening + Scoring:</b> $\leq 10\%$ in Semifinals.
<b>Precise</b>   Location	Pinpoint Location	<b>Screening:</b> Within $1\text{m}^2$ from the fire,  <b>Scoring:</b> Points toward closest to fire

<sup>1</sup> Screening criteria have minimum thresholds that must be met and are assessed as 'pass/fail'.

<sup>2</sup> Scoring criteria are optional to demonstrate for additional points and determine who of all the teams that pass the screening criteria, advance or win.

## **Judging Panel Roles During Testing**

During Testing, Judges will evaluate and score the testing outputs resulting from STV.

Judges will be assigned their roles at XPRIZE's discretion. Teams may not request a particular Judge and will not know ahead of time which Judge is acting in what role at testing.

## **Judges' Decisions**

Judging decisions are final. Judges are prohibited from providing feedback to Teams. Teams may not contact Judges outside of XPRIZE-managed circumstances. XPRIZE does not interfere with the Judges' deliberations or decisions in any way. Judges are required to recuse themselves for any reason that might compromise the impartiality of their deliberations or decisions.

In some instances, the Judging Panel may require additional information from Teams and XPRIZE will facilitate these discussions as necessary. The Judging Panel retains ultimate discretion to declare the winners of the Competition and otherwise award all Prizes (subject to the Competitor Agreement). All judging decisions and opinions made by the Judging Panel are binding on both Teams and XPRIZE, and are not subject to review or contest. No judging decision may be challenged by a Team, and all Teams agree to abide by and refrain from any such challenge.

—END OF RULES AND REGULATIONS—



# Glossary

*Includes definitions of key terms and initials in addition to those defined in Guidelines.*

## **API**

Application Programming Interface.

## **ArcGIS**

A geographic information system for working with maps and geographic information.

## **CSV**

Comma-Separated Values, a file format used for data storage.

## **EO**

Earth Observation.

## **EO Data**

Data obtained from Earth Observation.

## **Esri**

Environmental Systems Research Institute, a supplier of geographic information system software.

## **False Negative (FN)**

A missed identification of a fire.

## **False Positives (FP)**

Incorrect identification of a hot object or surface as a fire.

## **HALE**

High Altitude Long Endurance.

## **HAPS**

High Altitude Pseudo-Satellites.

## **IoT**

Internet of Things.

## **Kármán line**

The boundary of space, defined as 100 km above sea level.

## **N**

Notifications issued during the STV.

**Pyrocumulonimbus**

A type of thunderstorm cloud formed by intense heat from wildfires.

**STV**

Semifinals System Technical Verification.

**Terrestrial Communications**

Communication systems used on the ground.

**TP**

True Positive, a correct identification.

**Velocity**

A cloud-native add-on capability for ArcGIS Online.