PISA-CA

Proactive Irrigation Scheduling Assistant

User Manual

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Based on: Sperling O, Tricerri N, Orozco J, Ellis Z, Gardi I, Secchi F, Zwieniecki MA (2025) Integration of seasonal rainfall and irrigation into a water management plan for almond orchards. Agric. Water Manag. 319:109743

https://pisa-ca-7f9944ce355a.herokuapp.com/

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1. Introduction

PISA-CA (Proactive Irrigation Scheduling Assistant) is a web-based tool developed by Maciej Zwieniecki at UC Davis that helps orchard growers plan their irrigation for the entire growing season. Based on the research framework described in Sperling et al. (2025), PISA-CA uses satellite data to build a complete water budget -- showing how much water your trees will need each month and how to distribute irrigation across the season.

Instead of reacting to soil moisture readings day by day, the tool takes a proactive approach: it calculates the full season's water needs upfront, using satellite-measured canopy size, historical weather patterns, and soil water-holding capacity.

The tool combines several satellite data sources automatically:

- NDVI (canopy size) -- from Sentinel-2 satellite imagery, tells how big your canopy is
- Rainfall -- from GRIDMET (continental US) or CHIRPS (rest of world)
- ET0 (reference evapotranspiration) -- from TerraClimate, measures atmospheric water demand
- Soil water capacity -- from OpenLandMap, estimates how much water your soil can hold
- Climate zone -- automatically classified from 20-year precipitation/ET0 climatology

PISA-CA supports orchards in Mediterranean, semi-arid, temperate, arid, and humid climates in both hemispheres. It includes species-specific phenology for Almond, Pistachio, and Walnut, plus a configurable 'Other' option for any temperate deciduous crop.

> **Warning:**
> PISA-CA is a research tool in active development. Results are estimates based on satellite data and scientific models -- they are not certified irrigation recommendations. The tool is calibrated for mature orchards (4+ years). Young orchards with sparse canopy may receive overestimated water budgets.

2. Getting Started

2.1 Welcome Screen

When you first open PISA-CA, a welcome dialog appears with a disclaimer, supported climates, supported species, and a brief overview of how to use the tool. Read through this information, then click 'Got it -- take me to the tool' to proceed.

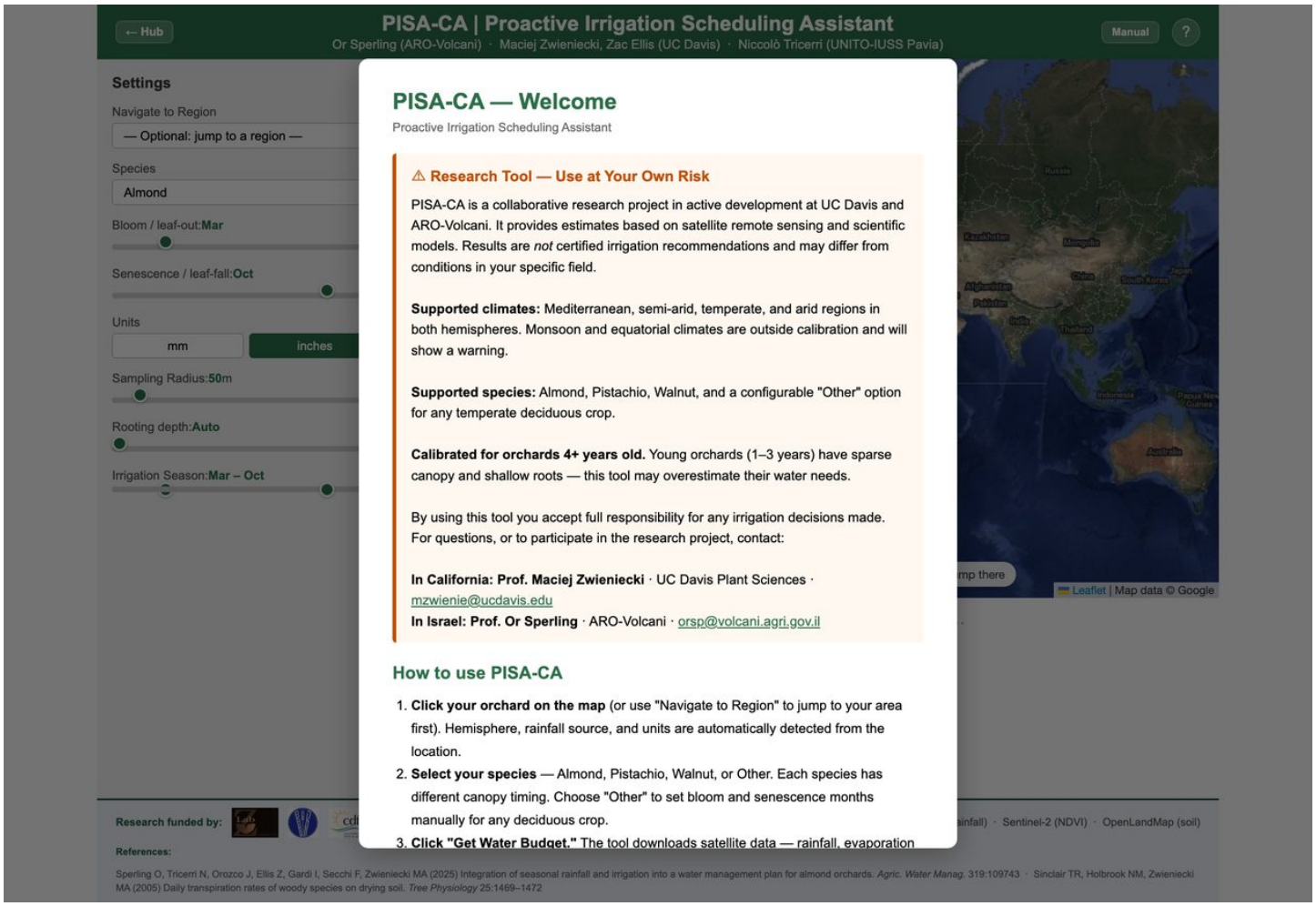

Figure 1: Welcome screen with disclaimer and quick-start guide

2.2 Interface Overview

The main interface is divided into three areas:

- Left sidebar -- All settings and controls: region navigation, species selection, units, sampling radius, rooting depth, irrigation sliders, dry-down options, sprinkler settings, water balance summary, and satellite data details.
- Top right: Map -- Interactive satellite map (Google hybrid). Click anywhere to select your orchard location. A yellow circle shows the sampling radius. Use the search box to find locations by address, city name, or coordinates.
- Bottom right: Outputs -- Monthly budget table, water budget chart, and sprinkler operating schedule appear here after you fetch data.

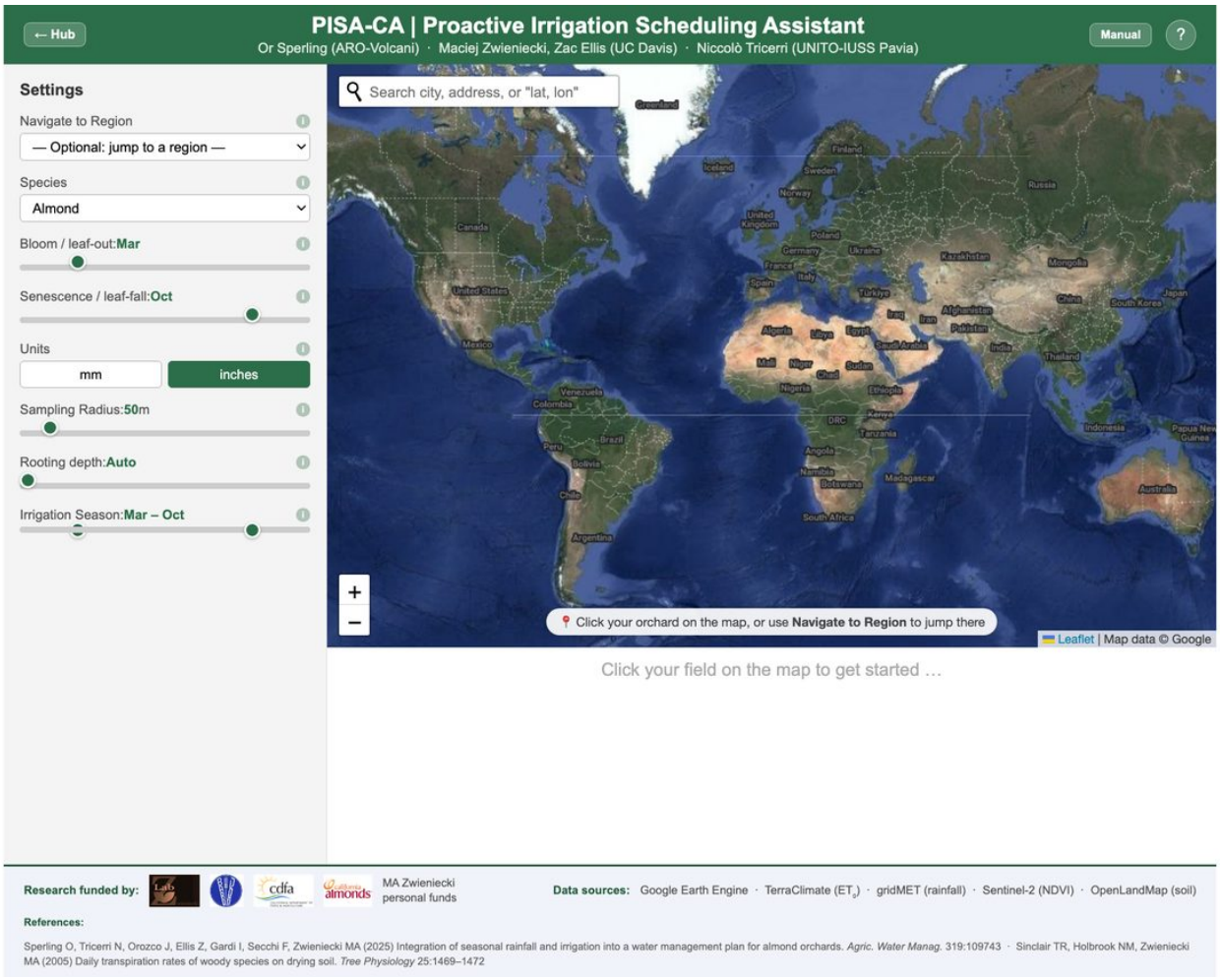

Figure 2: Main interface -- sidebar (left), map (top right), outputs (bottom right)

The green header bar shows the tool name. The '?' button in the top-right corner reopens the welcome/help dialog at any time. The 'Hub' button returns to the Z-Lab Orchard Analytics hub page.

2.3 Navigating to Your Region

The 'Navigate to Region' dropdown is optional -- it simply pans the map to a preset area to make it easier to find your orchard. Available regions include California, USA, Israel, Italy, Spain & Portugal, Chile, Australia, and Other (world view).

Important: The region dropdown does NOT determine the data source, hemisphere, or units. All of these are automatically detected from the coordinates where you click. You can select 'Chile' to navigate there, then click in California -- the tool will correctly use GRIDMET rainfall, Northern Hemisphere phenology, and inches.

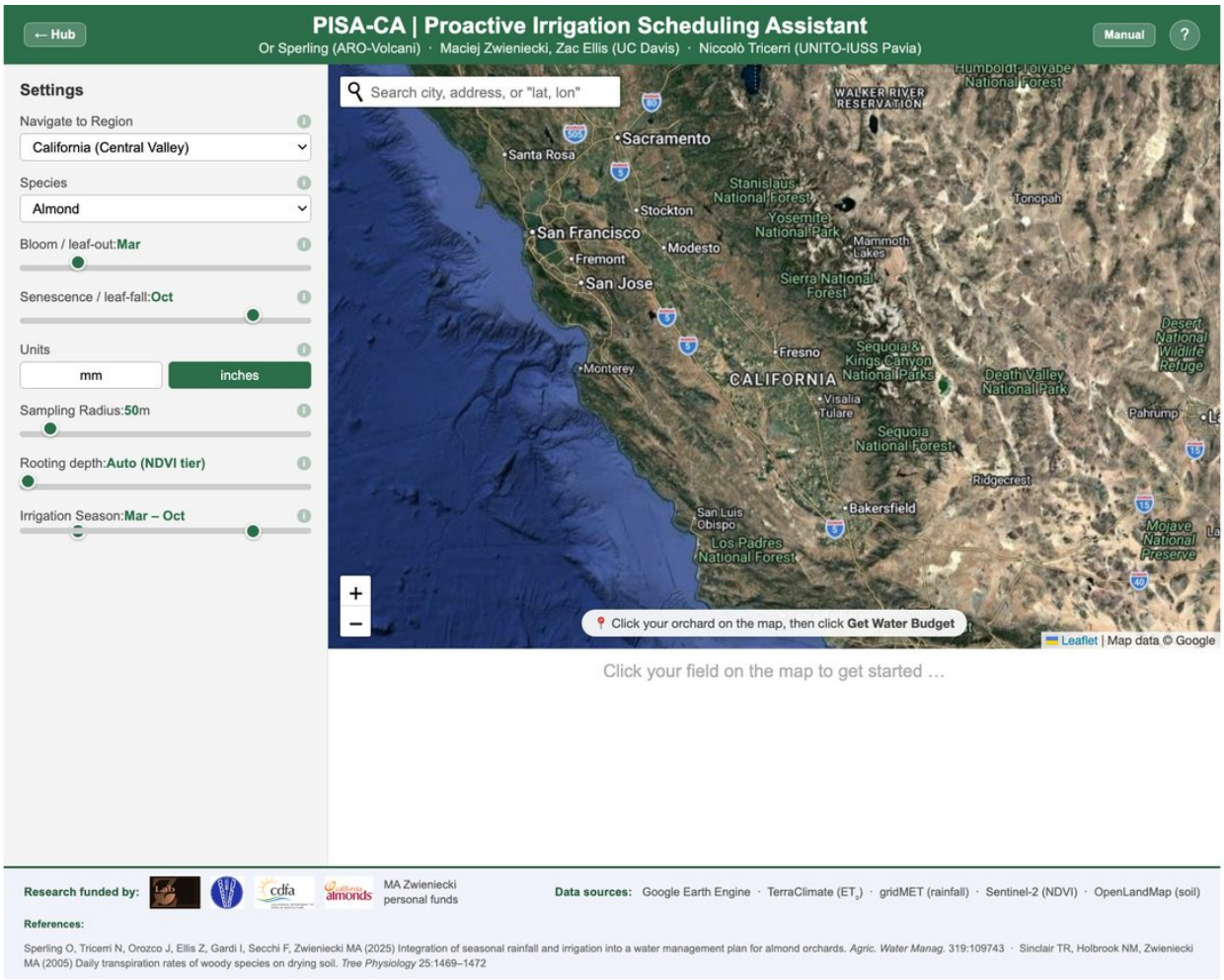

Figure 3: Map after selecting 'California' from the region dropdown

3. Selecting Your Orchard

3.1 Click on the Map

Click directly on your orchard in the satellite map. A red marker appears at the clicked location and a yellow circle shows the sampling area (default 50 m radius). The status bar below the sidebar confirms your coordinates, hemisphere, and data source.

When you click, the tool automatically detects:

- Hemisphere -- Northern (latitude >= 0) or Southern (latitude < 0). This affects the growing season months and phenology.
- Rain data source -- GRIDMET (4 km resolution) for continental US (CONUS: lat 24-50N, lon -125 to -66W), CHIRPS (5 km) for everywhere else.
- Units -- Inches for CONUS locations, millimeters for all others. You can switch units manually at any time.

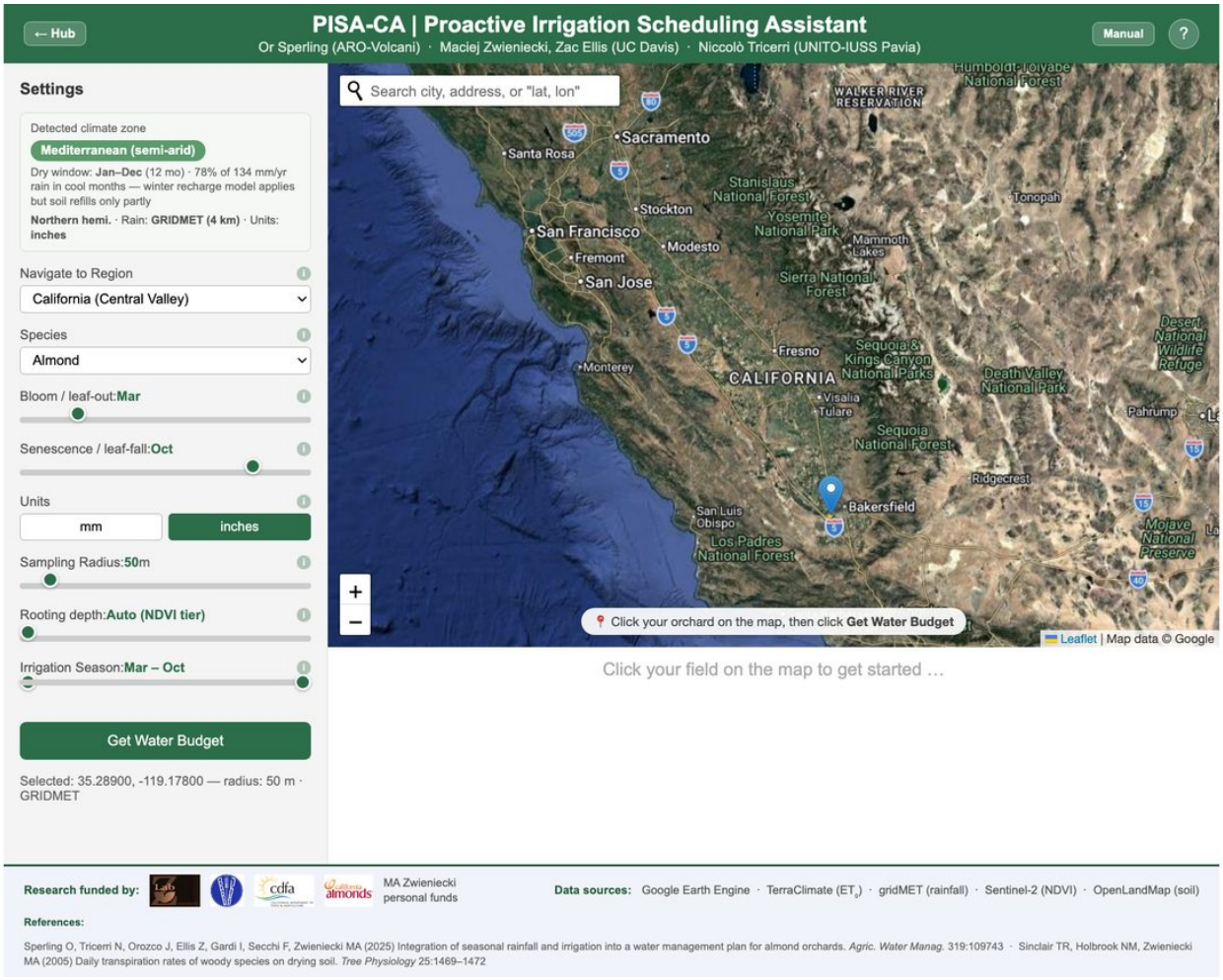

Figure 4: Orchard selected -- marker, circle, and auto-detected settings

3.2 Using the Search Box

The search box at the top of the map accepts three types of input:

- City or address -- Type a place name like "Bakersfield, CA" and press Enter. The map flies to that location and places a marker.
- Coordinates -- Type latitude and longitude separated by a comma, like "35.289, -119.178" and press Enter. The map jumps directly to those coordinates.
- Coordinates (decimal degrees) -- Both positive (Northern/Eastern) and negative (Southern/Western) values are supported.

Note:

When entering coordinates directly, the search box bypasses the geocoder -- your exact coordinates are used without any name lookup.

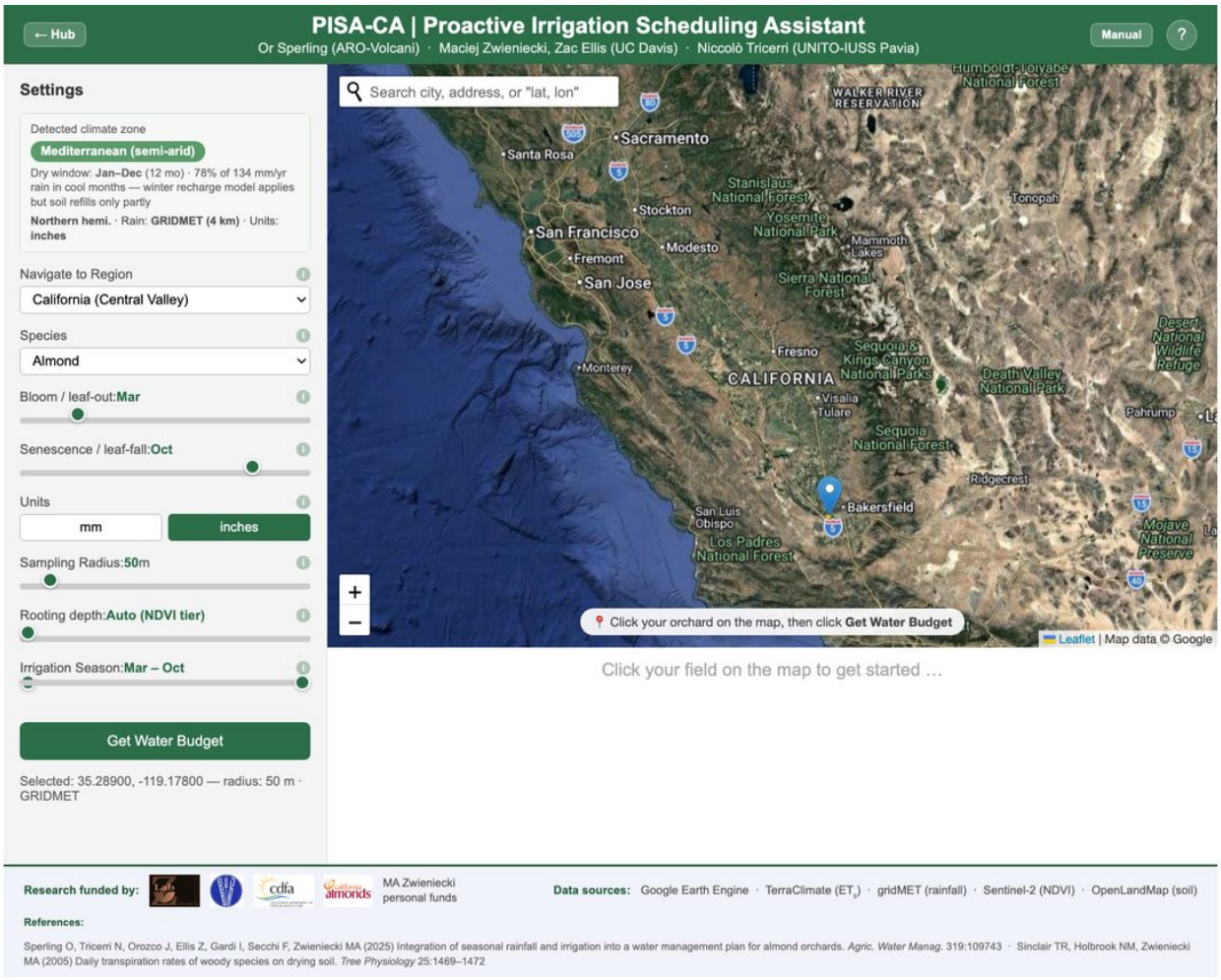

Figure 5: Search box at top of map for address or coordinate entry

3.3 Climate Zone Detection

As soon as you click a location, PISA-CA automatically classifies the climate zone using 20-year TerraClimate precipitation and ET0 data. The detected zone appears as a colored pill in the sidebar, along with the dry season window and a rationale.

Below the zone pill, the tool shows the auto-detected data configuration: hemisphere, rain data source, and measurement units.

Fully supported zones (Get Water Budget is enabled):

- Mediterranean -- classic winter-rain / dry-summer pattern (e.g. California, Chile, Mediterranean basin)
- Mediterranean (semi-arid) -- drier variant with longer dry season
- Temperate -- winter-wet pattern at higher latitudes (e.g. Washington state, Bordeaux)
- Temperate (semi-arid) -- drier high-latitude variant
- Transitional -- between Mediterranean and humid, some summer rain

Informational zones (Get Water Budget is enabled, with advisory banner):

- Arid -- insufficient rainfall year-round; heavy irrigation required. The model uses hemisphere-based growing periods.
- Humid -- rainfall meets most crop demand; supplemental irrigation may be unnecessary.

Blocked zones (Get Water Budget is disabled with a warning banner):

- Subtropical Monsoon -- summer-dominant rainfall (e.g. Tanzania, Zambia)
- Equatorial -- year-round wet season

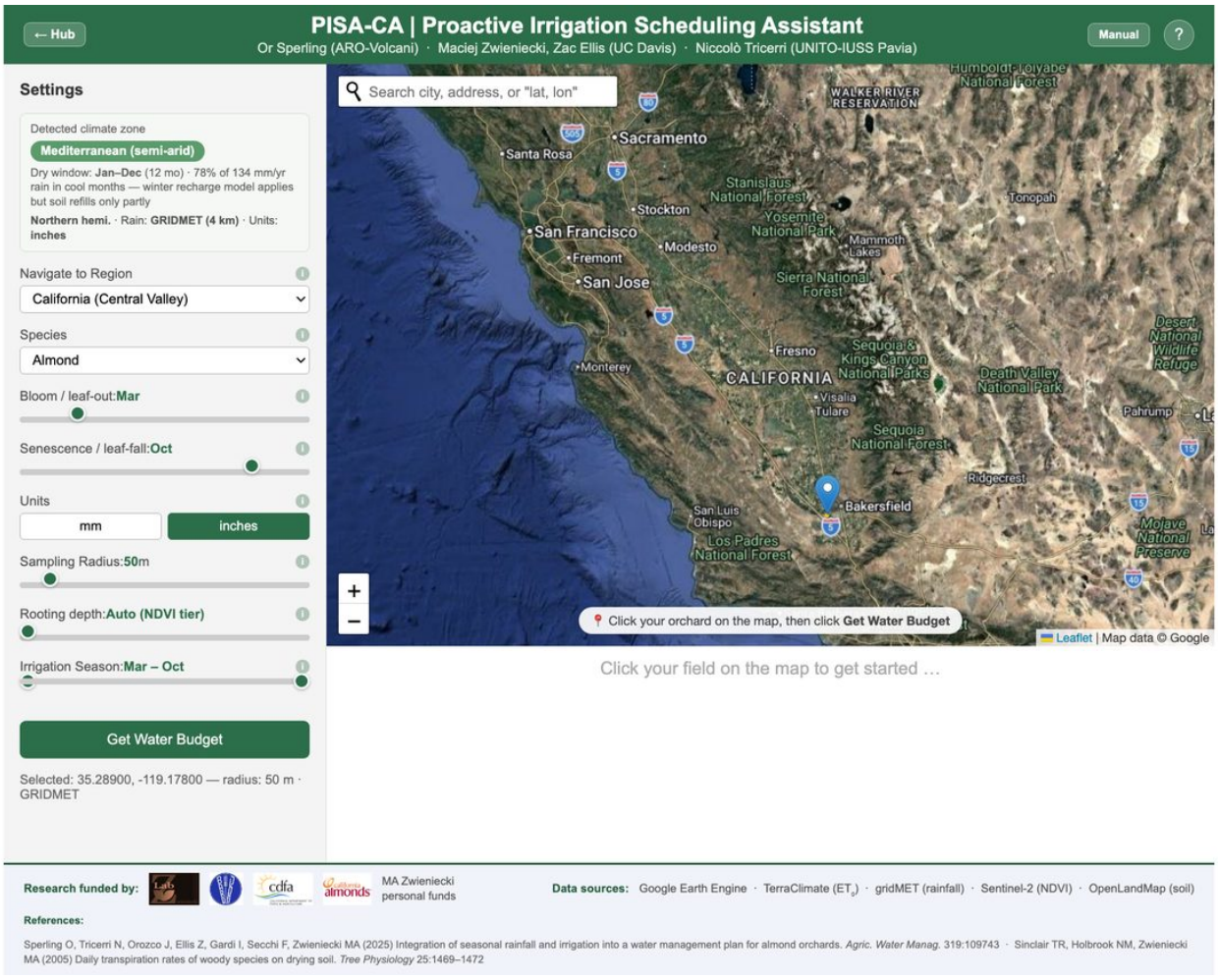

Figure 6: Climate zone detected as 'Mediterranean (semi-arid)' for a California location

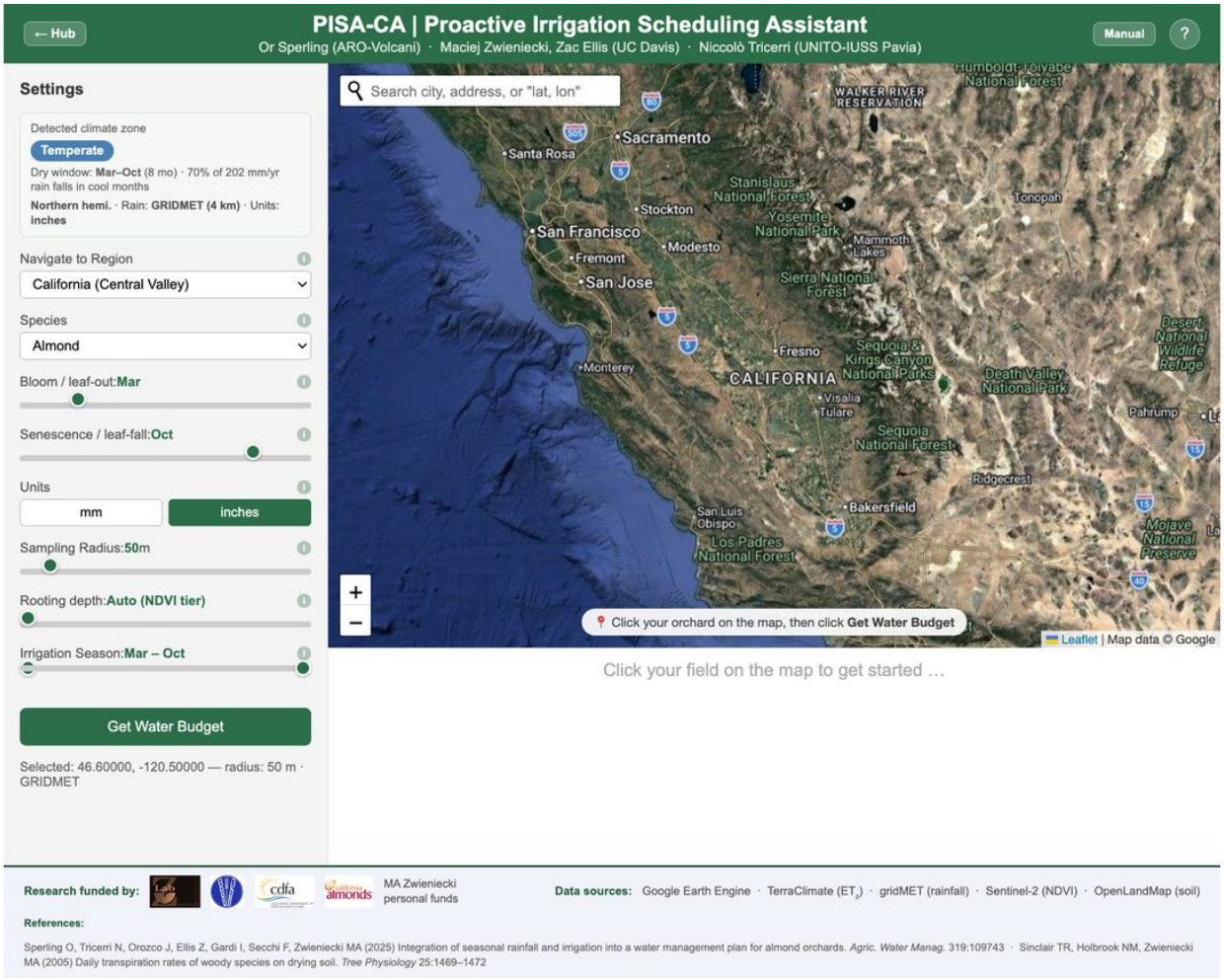

Figure 7: 'Temperate' zone detected for Washington state

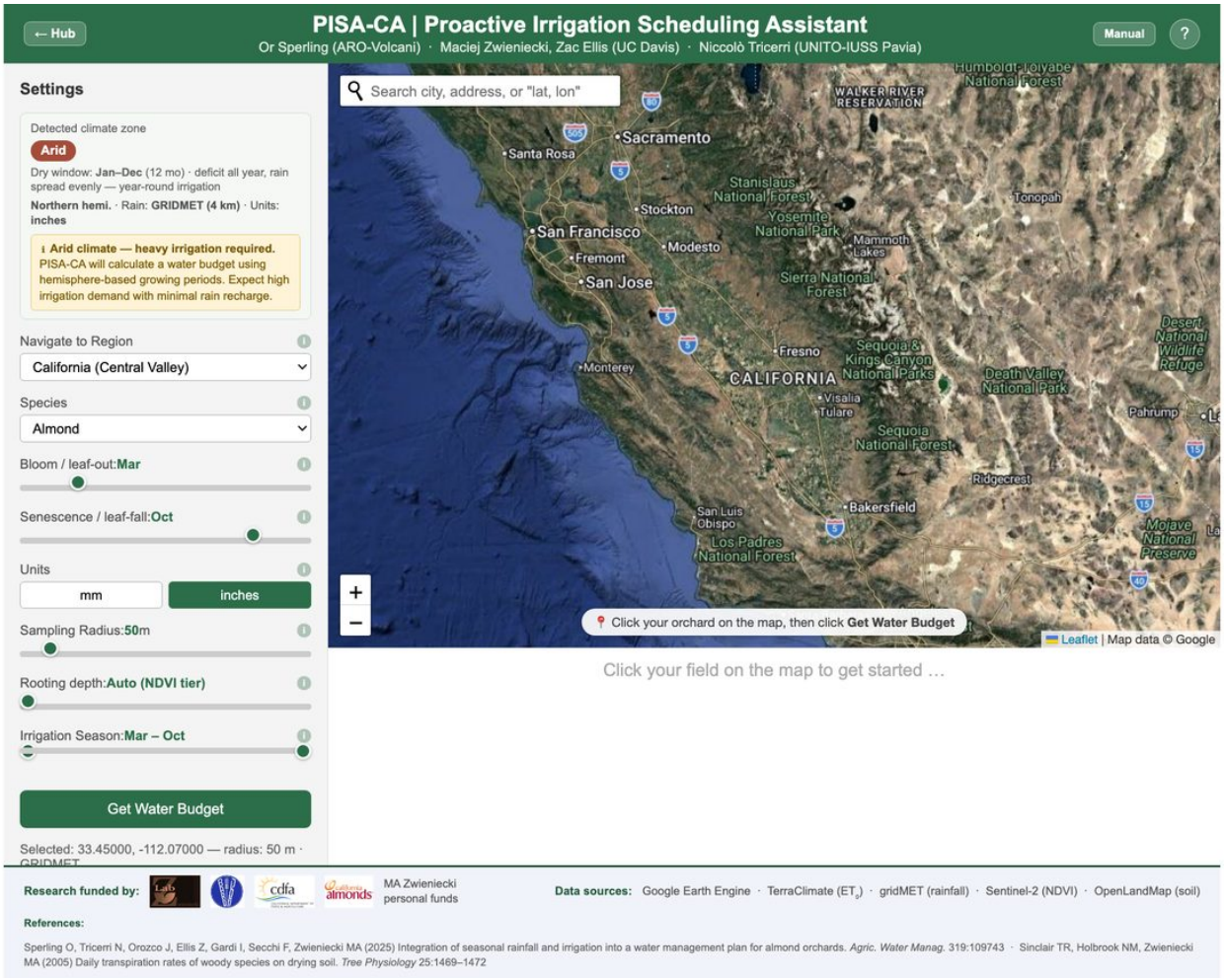

Figure 8: Arid zone with informational banner -- compute is enabled

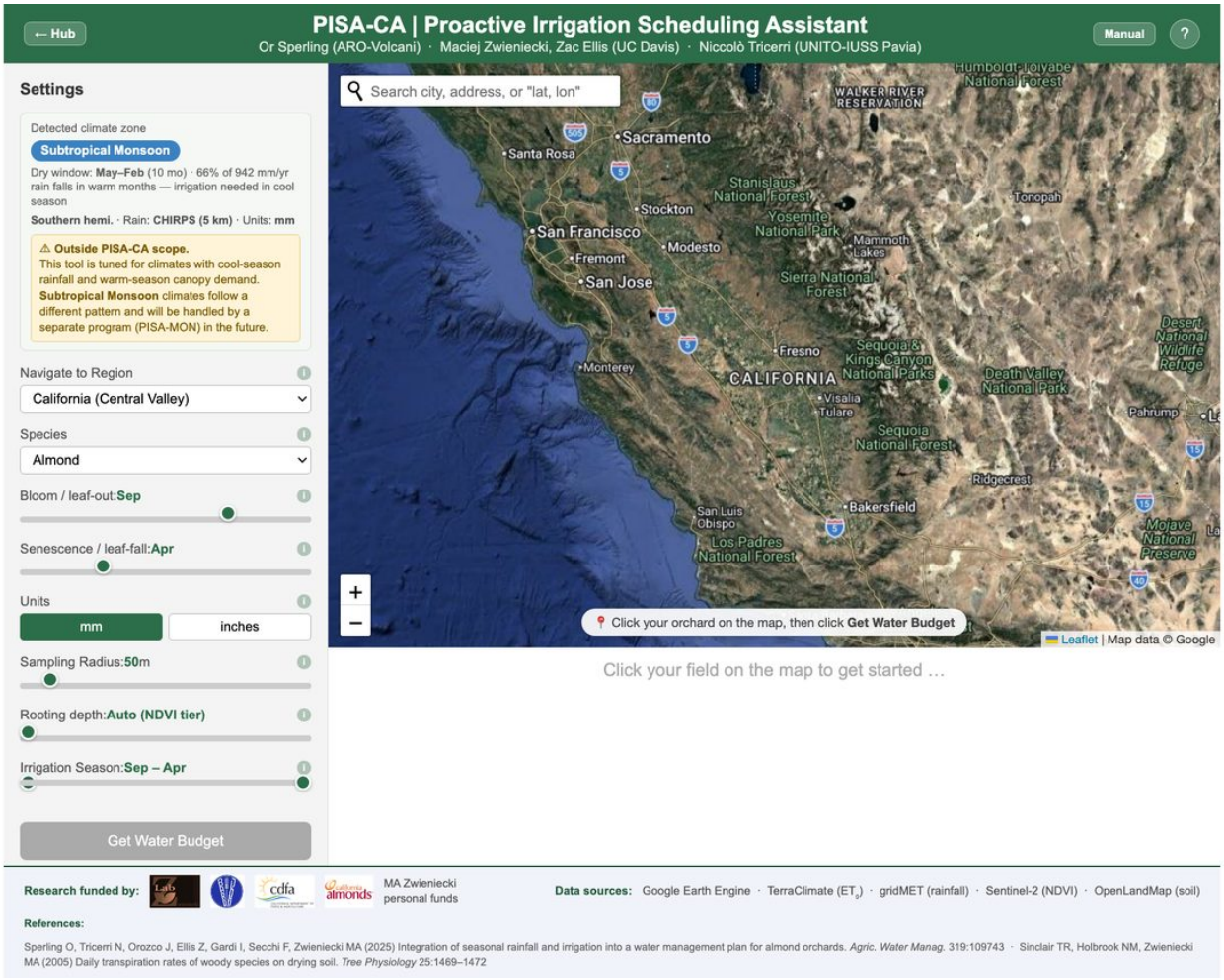

Figure 9: Out-of-scope warning for a Subtropical Monsoon location

4. Configuring Your Orchard

4.1 Species Selection

Choose your crop species from the dropdown. Each species has different canopy timing (leaf-out to senescence), which determines when the tree uses water and when it is dormant.

Species	NH Canopy	SH Canopy	Peak NDVI (NH/SH)	Harvest (NH/SH)
Almond	Mar-Oct	Sep-Apr	May / Nov	Sep / Mar
Pistachio	Apr-Oct	Oct-Apr	Jun / Dec	Sep / Mar
Walnut	Apr-Oct	Nov-Apr	Jul / Jan	Oct / Apr
Other	User-set	User-set	Bloom+2	Sen. month

All species show Bloom/leaf-out and Senescence/leaf-fall sliders, pre-filled with the species' default canopy window. You can adjust these for any species to account for local climate conditions or climate-change shifts in phenology. For 'Other,' set them to define the canopy window for any temperate deciduous crop. The NDVI peak is assumed to be 2 months after bloom.

After you click 'Get Water Budget,' the species dropdown and bloom/senescence sliders are locked (grayed out) to prevent inconsistencies with the fetched data. If you need to change them, click the red 'Reset Budget' button -- this clears all results but keeps your map location, so you can adjust and re-fetch.

> **Note:**
> The species selection drives the irrigation season slider defaults. The irrigation season is always constrained to the canopy window (bloom to senescence). You can start irrigation later than bloom (pre-season sliders appear for the gap months) or end earlier, but never outside the canopy period.

4.2 Units (inches / mm)

Toggle between imperial (inches) and metric (millimeters). Units are auto-set based on location (inches for CONUS, mm elsewhere) but can be changed anytime. All slider values are preserved when switching -- nothing is reset.

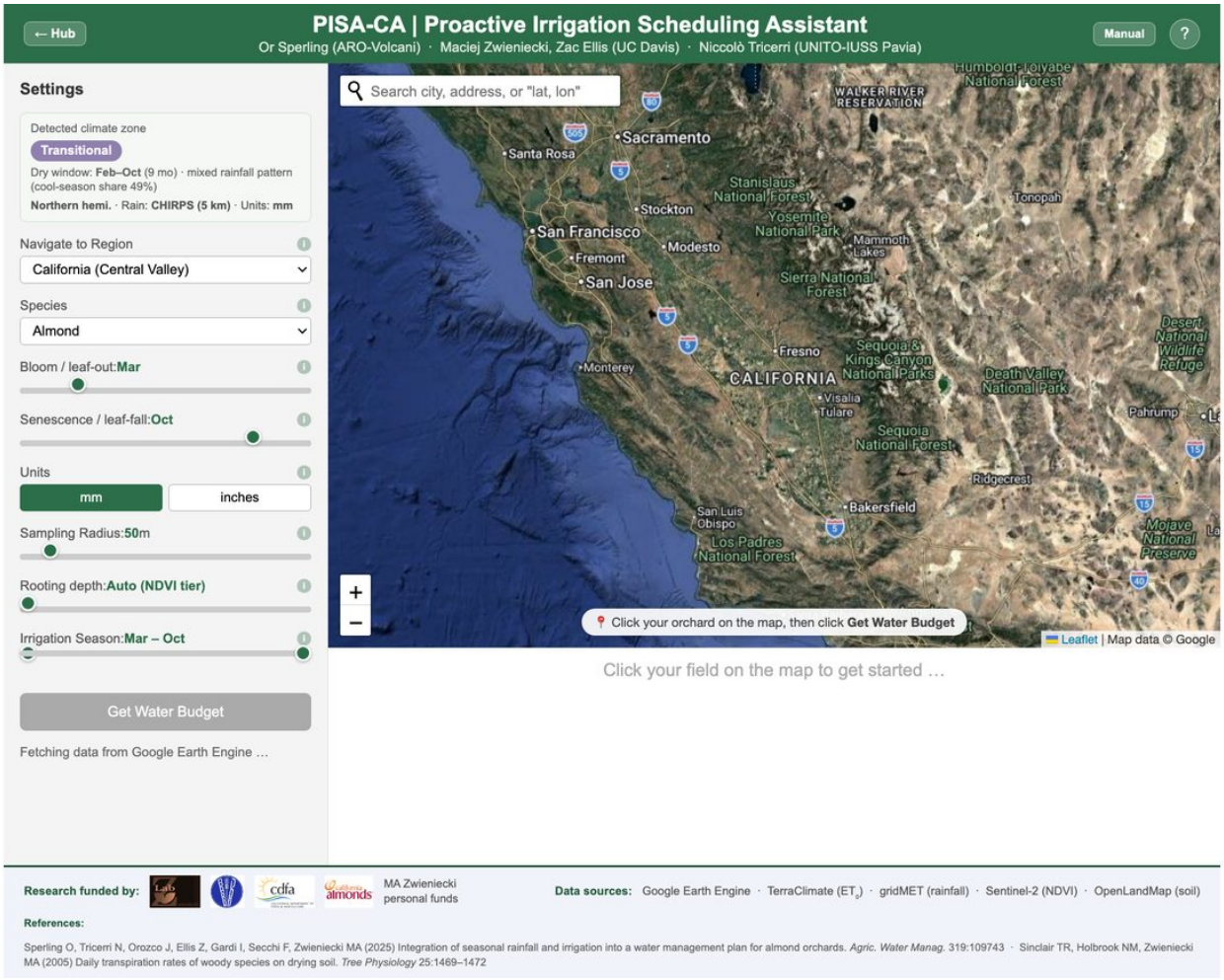

Figure 10: Interface in metric mode (mm) for a non-US location

4.3 Sampling Radius

The sampling radius (default 50 m) controls the area averaged for NDVI and soil data. The yellow circle on the map shows this area. Increase it for variable orchards to get a more representative value; decrease for small or uniform blocks.

Range: 10 m to 500 m.

4.4 Rooting Depth

By default, rooting depth is set to "Auto (NDVI tier)" which uses the satellite-measured canopy density to estimate root depth:

- Sparse canopy (NDVI < 0.3) -- 80 cm (shallow roots)
- Moderate canopy (NDVI 0.3-0.5) -- 150 cm
- Dense canopy (NDVI >= 0.5) -- 200 cm (full profile)

Override this with the slider if you know your orchard's actual root zone depth. For example, set 80 cm for trees on hardpan, or 120 cm for sandy loam with limited depth. The rooting depth determines how much soil water capacity is available -- shallower roots mean less stored water and more irrigation needed.

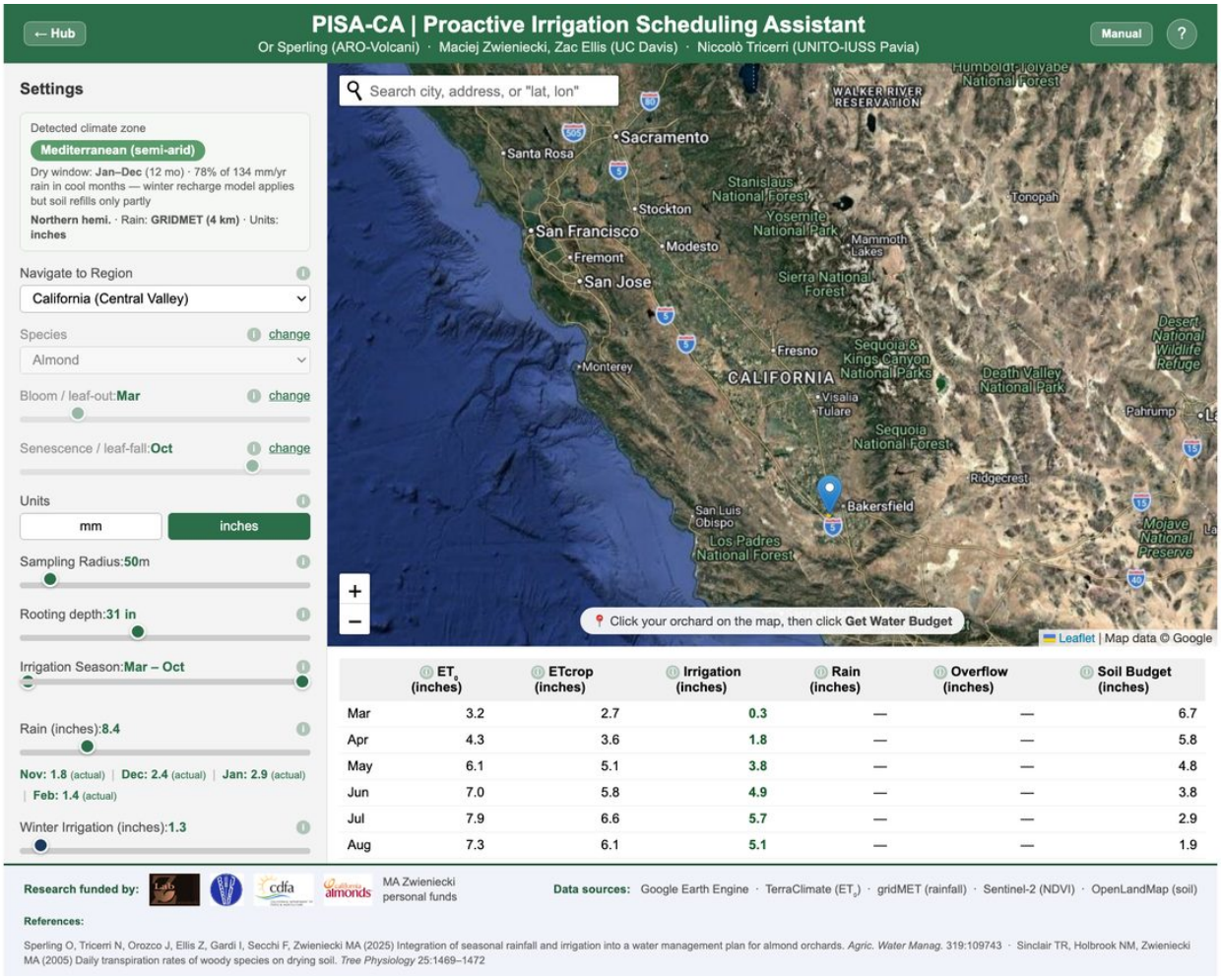

Figure 11: Rooting depth manually set to 80 cm (31 in)

5. Getting Your Water Budget

5.1 Fetching Satellite Data

After clicking your orchard and selecting your species, click the green "Get Water Budget" button. The tool fetches satellite data from Google Earth Engine -- this typically takes 5-15 seconds depending on server load.

Data fetched includes:

- Monthly ET0 -- Reference evapotranspiration from TerraClimate (2019-2024 average)
- NDVI -- Sentinel-2 canopy density for your species' peak month (cloud < 10%)
- Rainfall -- Monthly breakdown from GRIDMET or CHIRPS
- Soil water capacity -- OpenLandMap field capacity at 33 kPa, 5 depth layers (0-200 cm)

Once data loads, the sidebar populates with rainfall, winter irrigation, and summer irrigation sliders -- all pre-set to recommended values. The output panel shows the budget table and chart. The species and bloom/senescence sliders are locked to prevent data inconsistencies. A red 'Reset Budget' button appears if you need to change species or phenology -- click it to clear data and start over at the same location.

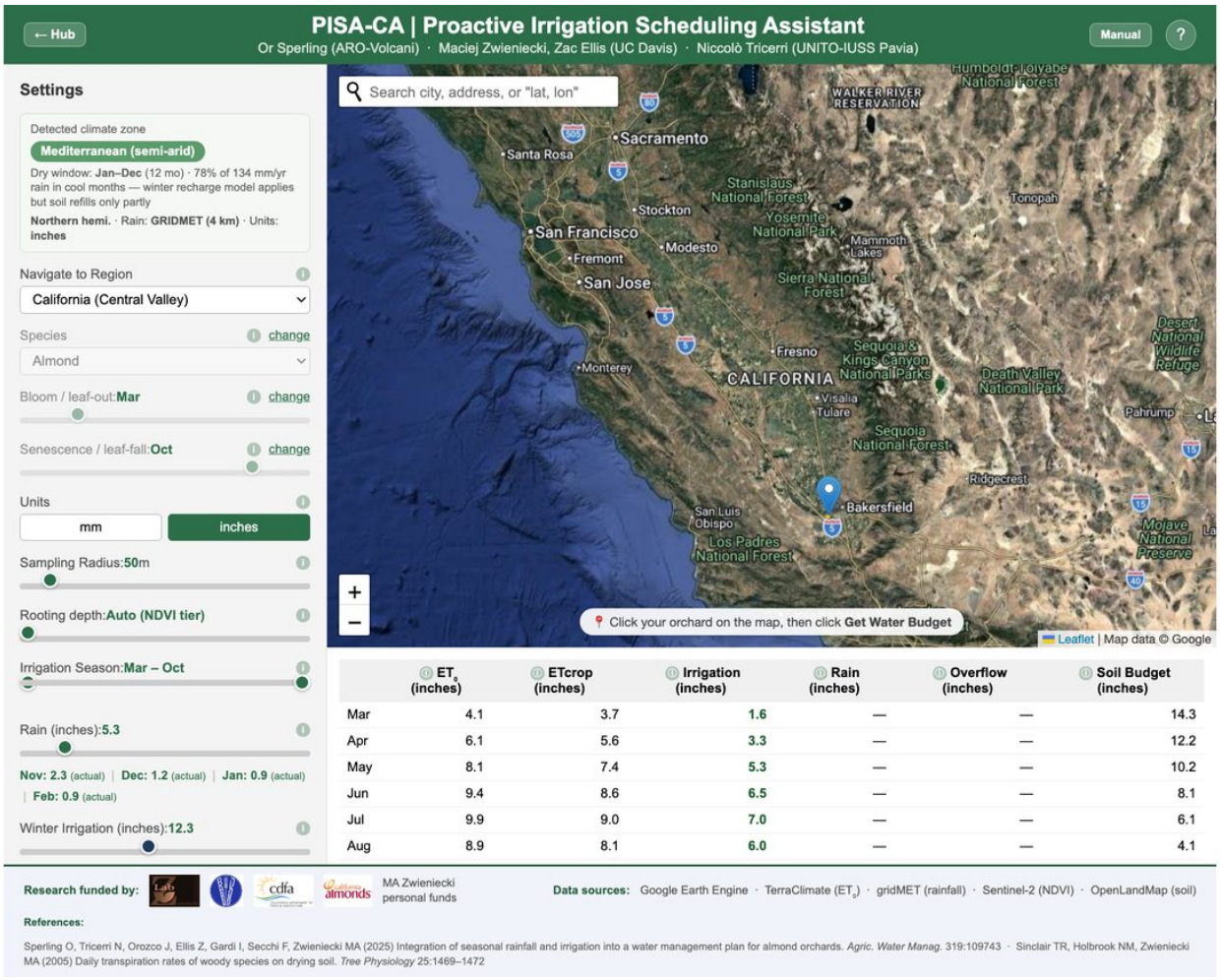

Figure 12: Water budget loaded -- table and all sliders populated

5.2 Understanding the Results

The tool calculates a three-step cascade:

- Step 1 -- Recommended winter irrigation: fills the soil profile to field capacity using rain (75% efficiency) + supplemental irrigation.
- Step 2 -- Recommended summer irrigation: covers crop water demand (ETcrop) over the growing season, drawing down stored soil moisture at a controlled rate.
- Step 3 -- Final budget: runs a month-by-month forward simulation showing soil water balance, overflow, and drought stress risk.

The model intentionally schedules less irrigation than full crop demand each month. Stored soil moisture from winter rain and irrigation supplements summer water needs, so the root zone gradually dries at a controlled rate through the season. This is the 'proactive' approach -- planning the full season upfront rather than chasing daily readings.

6. Adjusting Your Irrigation Plan

All sliders update the budget instantly. Use them to explore what-if scenarios -- the chart and table recalculate in real time as you drag.

6.1 Rain Slider

Shows the effective winter rainfall (Nov-Feb for Northern Hemisphere, Apr-Aug for Southern). The value is pre-filled from satellite data. Only 75% of measured rain is counted -- the rest is assumed lost to runoff or evaporation.

Adjust this if you have a local rain gauge with more accurate data. Below the slider, a month-by-month breakdown shows how much rain was measured (actual or historical average) for each winter month.

6.2 Winter Irrigation

Water applied during the dormant season (Nov-Mar) to fill the root zone before the growing season starts. The recommended value fills soil to field capacity after accounting for rain.

The slider thumb turns red if you exceed the soil's holding capacity -- any water above this threshold drains below the root zone and is wasted.

6.3 Summer Irrigation

Total water to apply across the entire irrigation season. The model distributes this across months based on each month's crop water demand (ETcrop). The recommended value balances crop demand against stored soil moisture.

If you increase the slider above the recommended value, over-irrigation occurs: orange bars appear in the chart showing overflow (water lost to deep drainage).

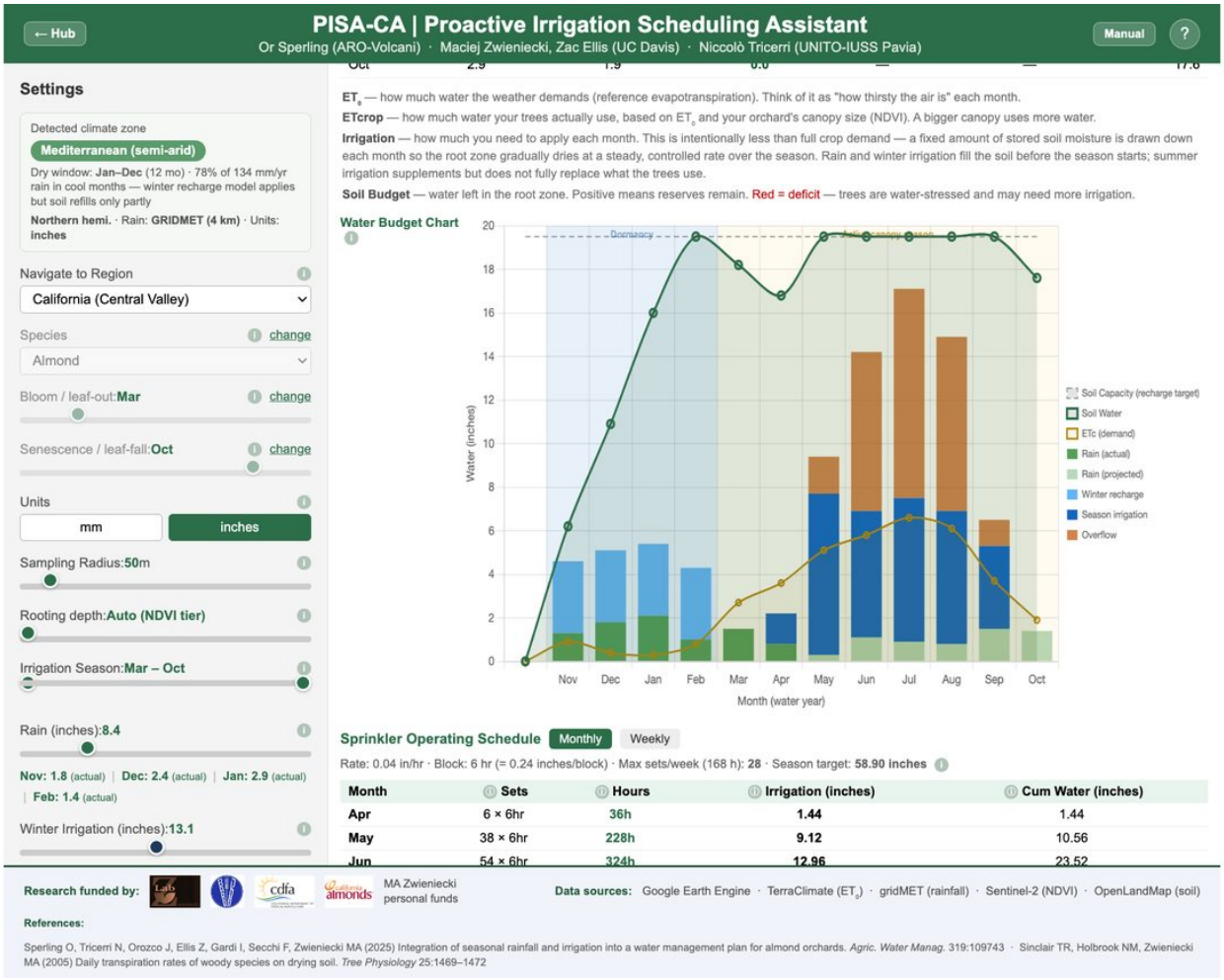

Figure 13: Over-irrigation scenario -- orange bars show overflow in peak months

6.4 Irrigation Season Range

The dual-handle slider sets the first and last month of your irrigation season. Defaults match the species' canopy window (e.g. Mar-Oct for NH Almond, Apr-Oct for NH Walnut). The slider is constrained to the canopy window -- you cannot schedule irrigation outside the growing season. Months outside bloom-to-senescence are handled by winter irrigation.

If you start irrigation later than bloom (e.g. start in May instead of March), additional per-month sliders appear for the gap months (March and April in this case). These 'pre-season' sliders let you enter how much water was effectively available in those months from rain plus any early irrigation you applied.

6.5 Pre-harvest Dry-down

Enable the 'Pre-harvest dry-down' checkbox to stop irrigation before harvest. This is common practice for almond harvest preparation. Configure:

- Start month -- month when dry-down begins (default: August)
- Start day -- day of month (default: 15th)
- Duration -- number of days without irrigation (default: 14)

When dry-down is enabled:

- The backend reduces irrigation proportionally for months overlapping the dry-down period
- Saved water is redistributed to other irrigation months, weighted by proximity to the dry-down period (closest months receive the most)
- The weekly sprinkler schedule shows dry-down days per week (pink rows with 'Xd off' labels)
- The budget table marks affected months with a red square

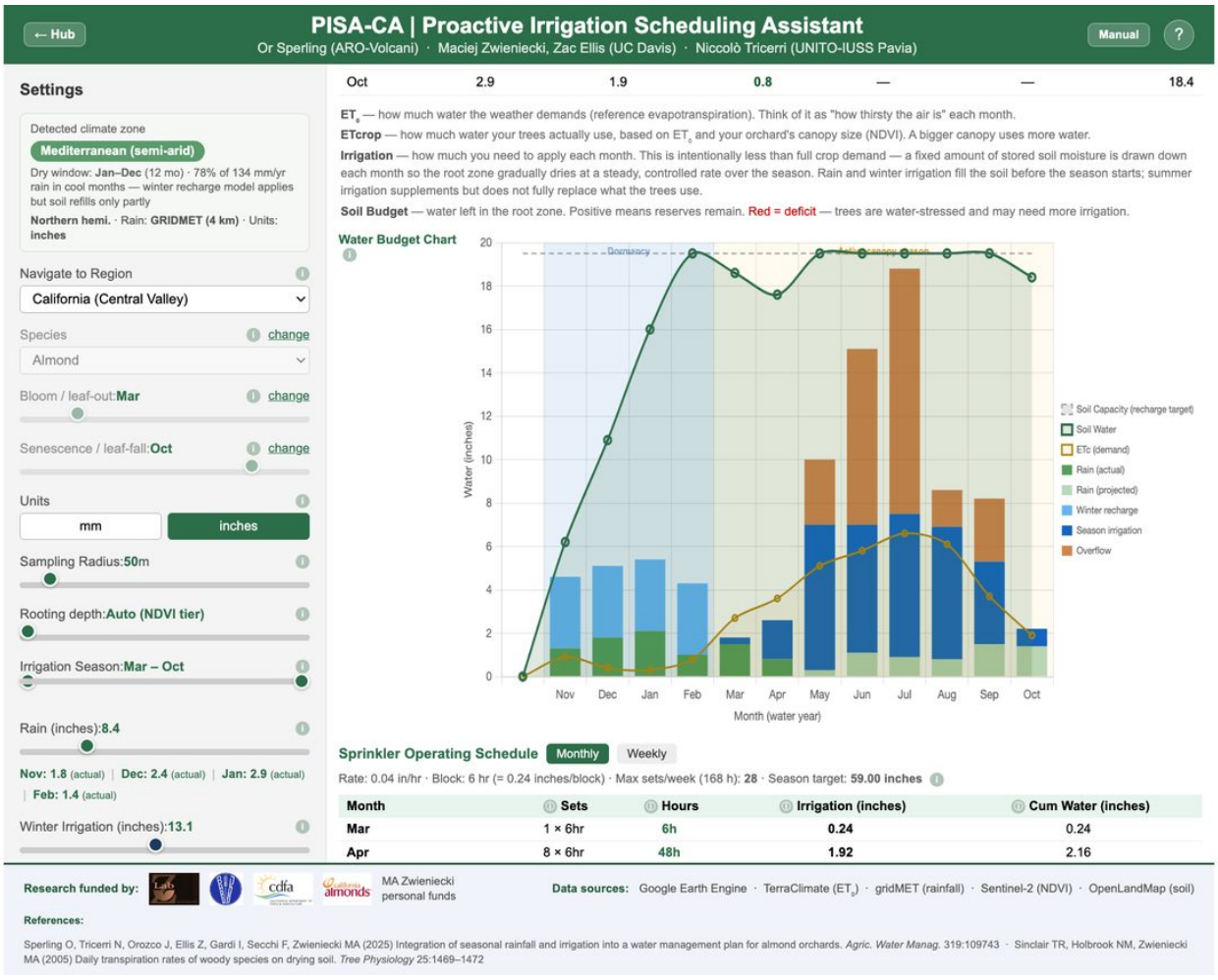

Figure 14: Dry-down controls in sidebar with weekly schedule showing affected weeks

7. Reading the Output

7.1 Water Balance Box

The water balance box in the sidebar summarizes the entire season's water accounting:

- Rain -- Effective winter rainfall (75% of measured)
- + Winter irrig. -- Water applied during dormancy to fill the soil
- + Pre-season water (if applicable) -- effective water in months before your irrigation start
- + Summer irrig. -- Total scheduled for the growing season
- = Total supply -- Sum of all water inputs
- Season ETcrop -- Total water the trees will use (based on canopy size and weather)
- End soil budget -- Water remaining in the root zone at season end. Positive = reserves remain. Red negative = deficit, trees were water-stressed.

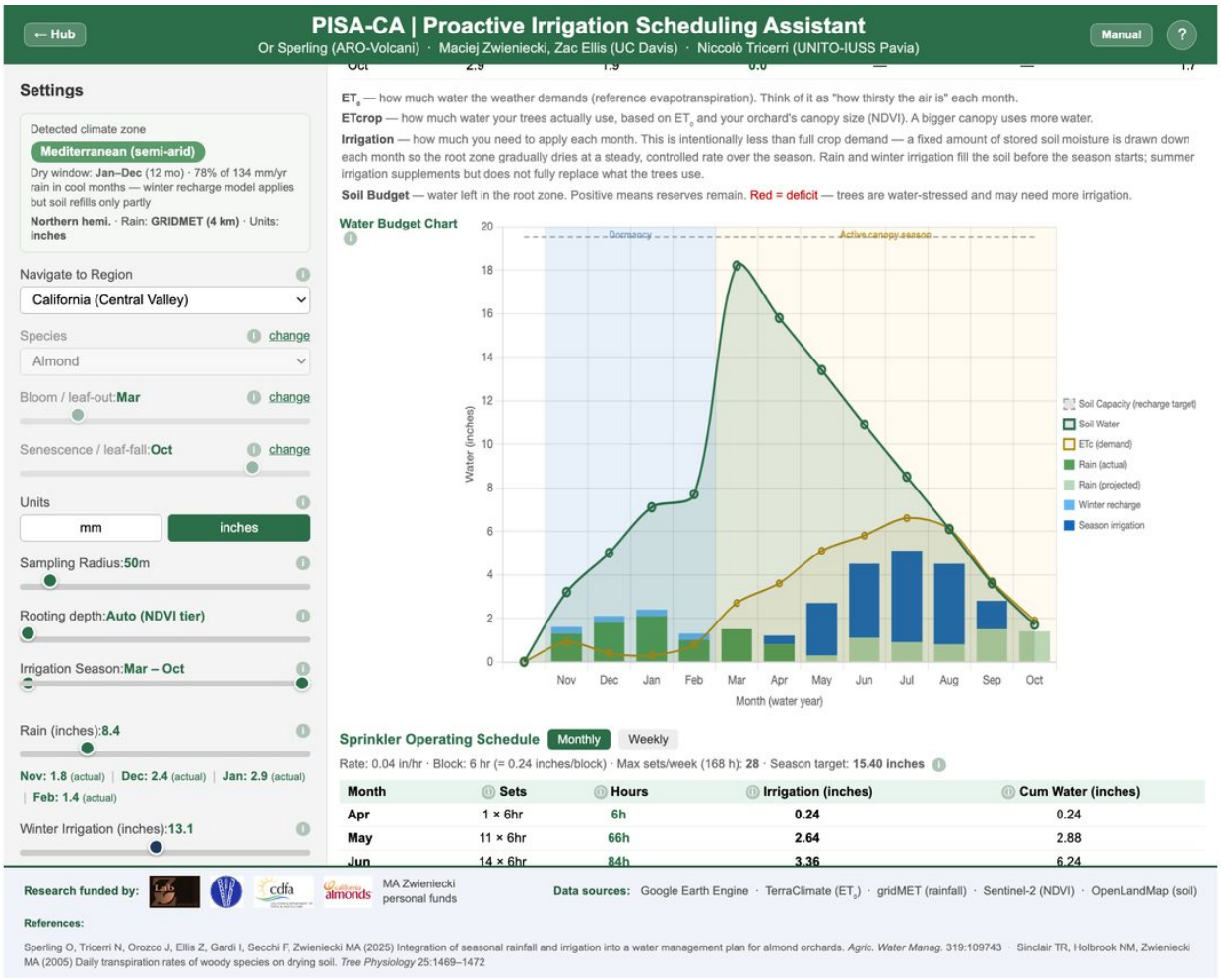

Figure 15: Water balance summary showing all inputs and season totals

Note:

If the end soil budget shows a large negative number, your trees are likely drought-stressed. Increase summer irrigation or reduce the irrigation season length. A small negative value (a few inches/mm) is normal and intentional -- PISA-CA targets a controlled draw-down.

7.2 Monthly Budget Table

The table shows month-by-month water accounting across the growing season:

- ET0 -- Reference evapotranspiration: how much water the atmosphere demands
- ETcrop -- How much water your trees actually use (ET0 x Kc, where Kc comes from NDVI)
- Irrigation -- How much water to apply this month
- Rain -- Effective rainfall in pre-season months
- Overflow -- Water lost when irrigation exceeds soil capacity (orange = waste)
- Soil Budget -- Water remaining in root zone at end of month

Red text in the Soil Budget column indicates drought stress -- the soil is empty and trees don't have enough water. Italicized rows marked with '*' are pre-season months (before your irrigation start).

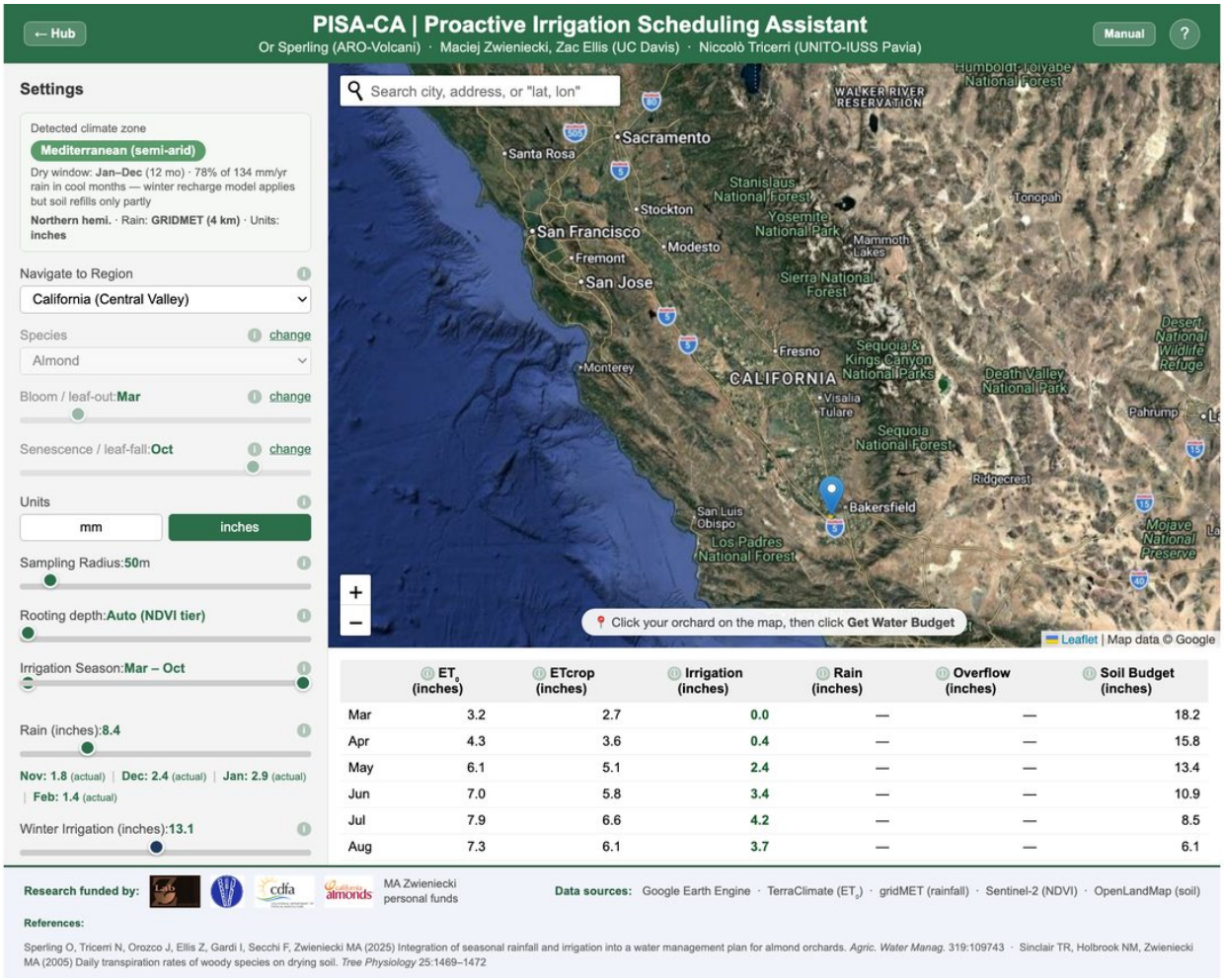

Figure 16: Monthly budget table showing ET0, ETcrop, irrigation, and soil budget

7.3 Water Budget Chart

The chart provides a visual overview of the full water year (all 12 months, starting from the dormancy period):

- Blue-shaded months -- Dormancy period (rain recharge)
- Yellow-shaded months -- Active growing season
- Green bars -- Monthly rainfall
- Dark green/blue bars -- Monthly irrigation (stacked on top of rain)
- Orange bars -- Overflow (water lost to deep drainage)
- Dark yellow line -- ETcrop (monthly crop water demand)
- Green line -- Soil water reserve through the season
- Dashed red line -- Soil water capacity (maximum the root zone can hold)

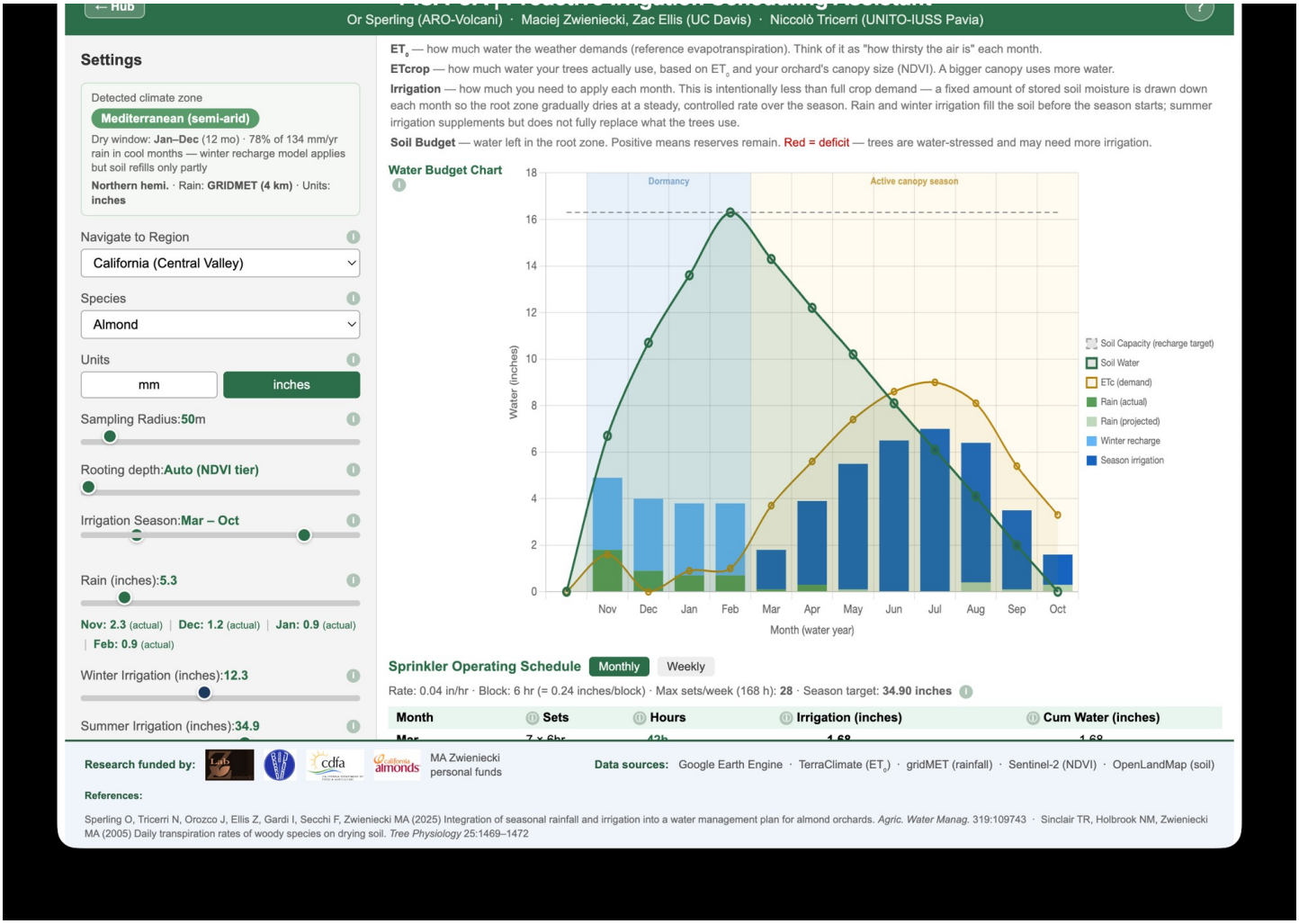

Figure 17: Water budget chart with legend

Legend explanation:

- Soil Capacity (dashed red line) -- maximum water the root zone can hold at field capacity
- Soil Water (green line) -- actual soil water reserve, drops through the growing season as trees draw moisture
- ET0 demand (dark yellow line) -- reference evapotranspiration, atmospheric demand on the canopy each month
- Rain (green bars) -- monthly rainfall; during dormancy this recharges the soil profile
- Rain (applied) (lighter bars) -- effective rain credited in pre-season months
- Winter recharge (blue bars) -- irrigation applied during dormancy to fill soil before growing season
- Season irrigation (dark green bars, stacked on rain) -- scheduled irrigation for each growing-season month

The chart makes it easy to see when the soil reserve runs low and when overflow occurs. Ideally, the green soil line should stay above zero through the season and the orange overflow bars should be minimal or absent.

7.4 Soil Water Capacity

At the bottom of the sidebar, the Soil Water Capacity table shows the water-holding capacity for each soil depth layer (0-10 cm, 10-30 cm, 30-60 cm, 60-100 cm, 100-200 cm). Data comes from OpenLandMap at 250 m resolution.

The table shows the volumetric water content (%) and the total water in each layer. The highlighted total depends on your rooting depth setting -- with Auto mode, it's determined by the NDVI tier.

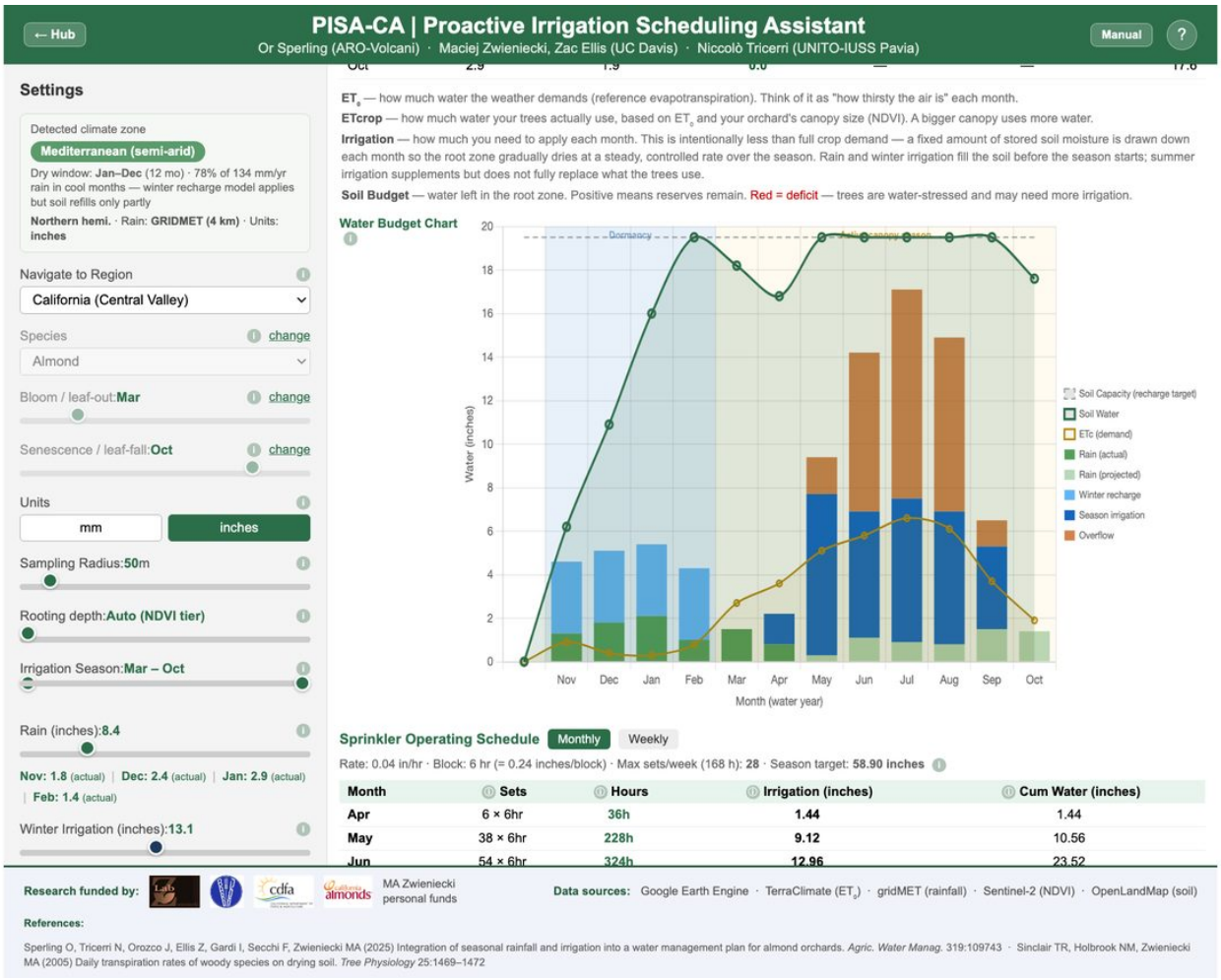

Figure 18: Soil water capacity table showing depth layers and total available water

8. Sprinkler Operating Schedule

PISA-CA converts the monthly water budget into a practical sprinkler operating schedule, so you know exactly how many hours to run your irrigation system each week or month.

8.1 Sprinkler Settings

Configure two parameters in the green Sprinkler Settings box:

- Output rate -- How much water your sprinklers deliver per hour (e.g. 0.04 in/hr or 1.0 mm/hr). This depends on your specific sprinkler hardware.
- Block duration -- Minimum run time per irrigation set in hours (e.g. 6 hours). This is the smallest irrigation 'block' your system runs.

8.2 Monthly View

The monthly view shows, for each irrigation month: total water to apply, number of irrigation sets (blocks), hours per set, and total hours for the month. Use this for high-level planning.

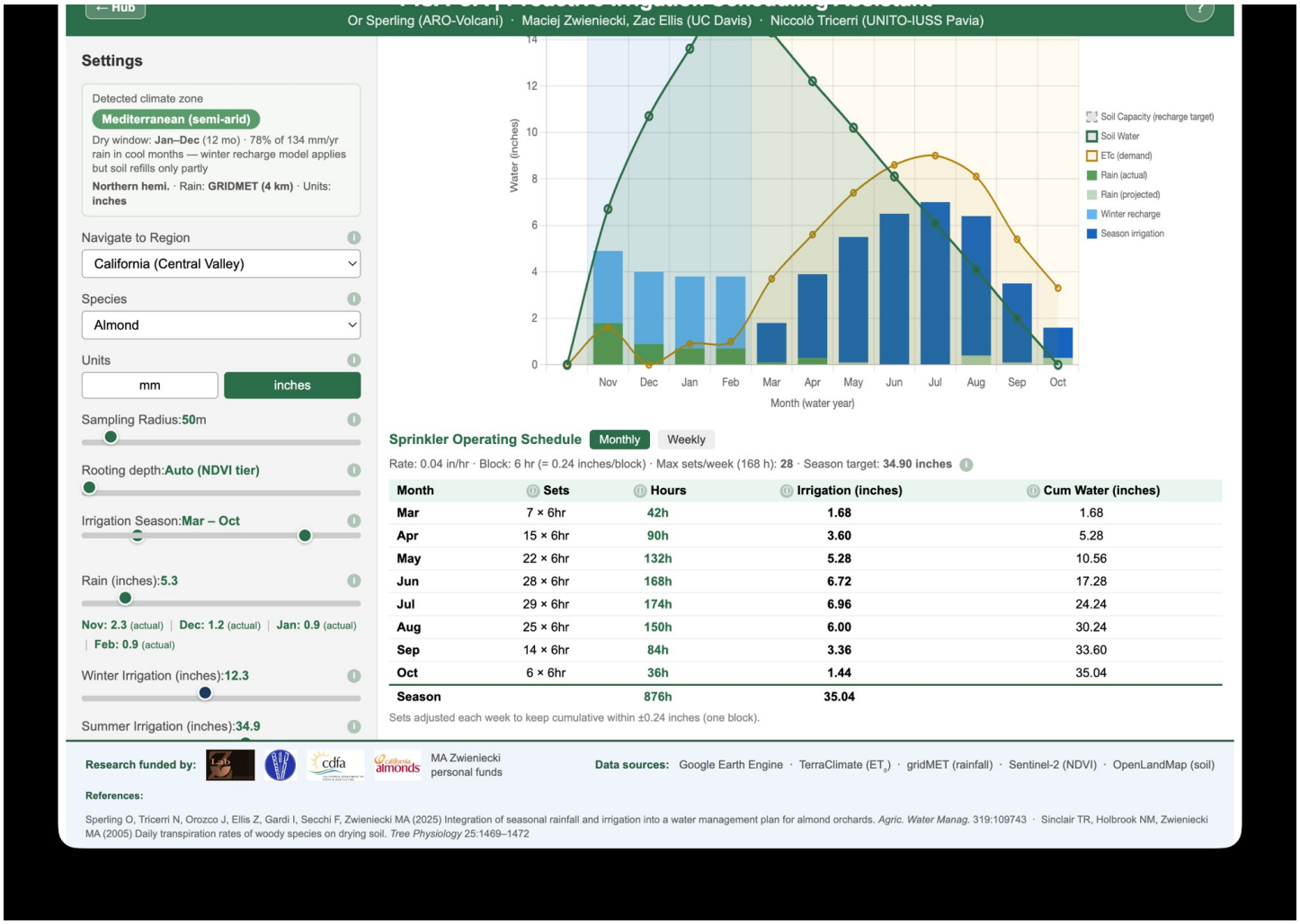

Figure 19: Monthly sprinkler schedule

8.3 Weekly View

The weekly view breaks each month into individual weeks, showing the exact number of sets and hours per week. This is the schedule you follow in the field.

Key details:

- Sets are distributed proportionally to each week's active irrigation days
- When dry-down is active, affected weeks show reduced sets and pink highlighting with the number of dry-down days labeled (e.g. '3d off')
- The cumulative water column tracks total irrigation applied through the season
- Yellow-highlighted rows indicate weeks where the maximum capacity is reached (sprinkler runs more than 168 hours/week = 24/7)

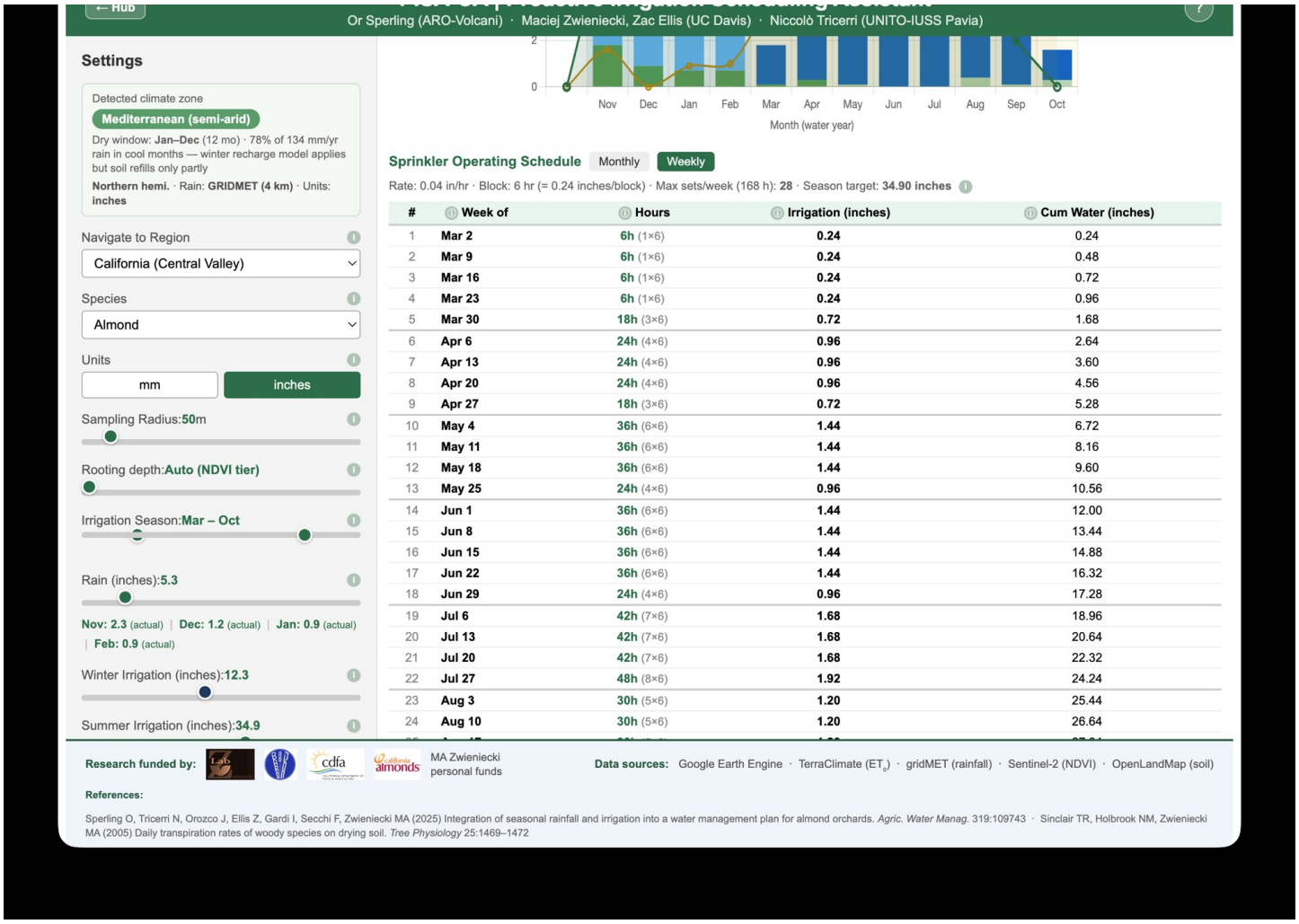

Figure 20: Weekly sprinkler schedule with per-week sets and hours

9. Printing a Report

Click the "Print Water Budget Report" button in the sidebar to generate a one-page printable report. This opens your browser's print dialog with a formatted report that includes:

- Location coordinates and satellite map image
- Orchard parameters (species, NDVI, Kc, rain data date)
- Water balance summary (rain, winter, summer, total supply, ETcrop, end budget)
- Monthly budget table
- Water budget chart
- Soil capacity breakdown

You can print to paper or save as PDF. The report is formatted to fit on a single page and includes the date and tool version.

10. Supported Climates & Limitations

PISA-CA is designed for climates with a clear winter-rain / summer-dry pattern where soil moisture recharges during dormancy and is drawn down during the growing season.

Fully Supported Climates

- Mediterranean -- classic winter-wet / summer-dry (California, Chile, Mediterranean basin)
- Mediterranean (semi-arid) -- drier variant, longer dry season
- Temperate -- winter-wet pattern at higher latitudes (e.g. Washington, Oregon, Bordeaux)
- Temperate (semi-arid) -- drier high-latitude variant
- Transitional -- some summer rain, between Mediterranean and humid

Supported with Advisory

- Arid -- insufficient rainfall year-round; the model uses hemisphere-based growing periods and calculates a water budget, but expect very high irrigation demand with minimal rain recharge
- Humid -- rainfall likely meets most crop demand; PISA-CA will calculate a water budget, but supplemental irrigation may be unnecessary

Unsupported Climates

- Subtropical Monsoon -- summer-dominant rainfall; the bulk-recharge model doesn't fit
- Equatorial -- year-round wet; no defined dormancy/recharge cycle

Age Limitations

PISA-CA is calibrated for mature orchards (4+ years) with established root systems and full canopy development. Young orchards (1-3 years) have sparse canopy and shallow roots -- the tool may overestimate their water needs because it assumes a relationship between canopy size and root depth that doesn't hold for recently planted trees.

Southern Hemisphere Support

The tool fully supports Southern Hemisphere orchards. When you click below the equator:

- Growing season shifts to Sep-Apr (Almond) or similar species-specific windows
- Rain source switches to CHIRPS
- Units default to mm
- Chart and table show the water year in the correct agricultural order

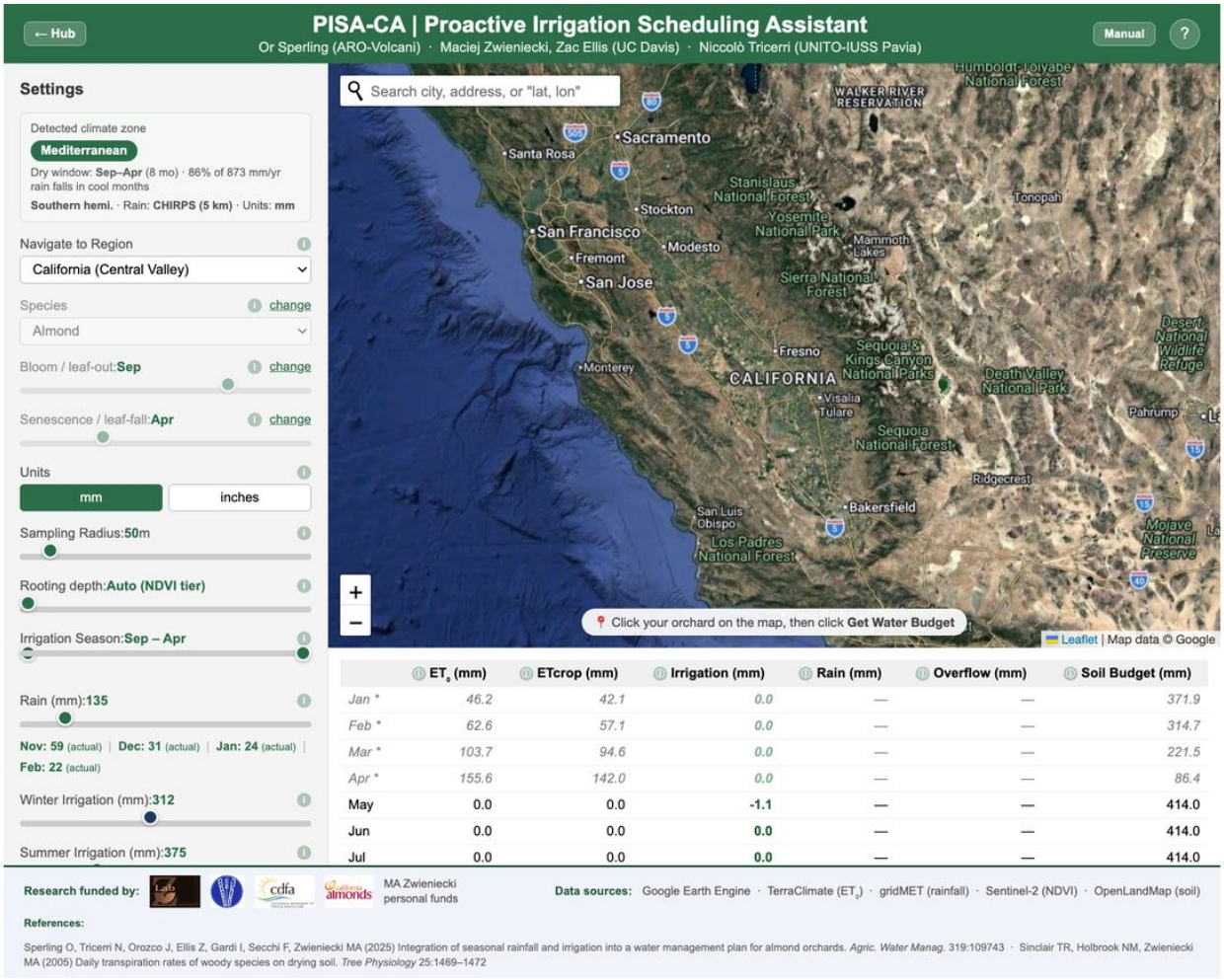

Figure 21: Southern Hemisphere location (Chile) with auto-detected SH settings

11. Data Sources & Model Parameters

Satellite Data Sources

Data	Source	Resolution	Period
NDVI (canopy)	Sentinel-2	10 m	Latest cloud-free
Rain (CONUS)	GRIDMET	4 km	Current water year
Rain (global)	CHIRPS	5 km	Current water year
ET0	TerraClimate	~4 km	2019-2024 avg
Soil capacity	OpenLandMap	250 m	Static
Climate zone	TerraClimate	~4 km	20-yr climatology

Key Model Parameters

Parameter	Value	Notes
Rain efficiency	75%	25% assumed runoff/evap loss
Soil cap fallback	400 mm	If GEE soil data unavailable
NDVI ceiling	0.8	Maximum canopy density
NDVI growth rate	0.5	Prediction for young orchards
Kc formula	NDVI / 0.8	Linear, with senescence taper
Senescence taper	Last 2 months	Kc interpolated toward dormancy
Max sprinkler hrs	168 / week	7 x 24, capped with warning

NDVI Prediction Model

NDVI predicted = 0.8 - (0.8 - measured) x e^(-0.5)

This growth function predicts that young orchards with low current NDVI will grow toward a maximum of 0.8 over time. The growth rate (r=0.5) means the orchard reaches ~80% of maximum by age 6.

Senescence Taper

In the last two canopy months (e.g. September-October for NH Almond), the crop coefficient (Kc) is linearly tapered from the peak value toward the first dormancy month's actual Sentinel-2 NDVI. This recognizes that trees use less water as leaves senesce before going dormant.

References

Sperling O, Tricerri N, Orozco J, Ellis Z, Gardi I, Secchi F, Zwieniecki MA (2025) Integration of seasonal rainfall and irrigation into a water management plan for almond orchards. Agric. Water Manag. 319:109743

Sinclair TR, Holbrook NM, Zwieniecki MA (2005) Daily transpiration rates of woody species on drying soil. Tree Physiology 25:1469-1472

12. Troubleshooting & FAQ

Why is 'Get Water Budget' grayed out?

The button is disabled when the detected climate zone is outside PISA-CA's scope (Subtropical Monsoon or Equatorial). The tool's bulk-recharge model is not valid for these climates. Try a location in a Mediterranean, semi-arid, temperate, arid, or humid region.

Why is my NDVI low / showing sparse canopy?

NDVI is measured from the most recent cloud-free Sentinel-2 image at your species' peak month. Common reasons for low values:

- Young orchard (1-3 years) with small canopy -- expected
- Recent replanting or removal of trees
- Sampling radius includes non-orchard area (roads, bare ground)
- Cloud contamination in the satellite image

Try reducing the sampling radius or clicking more precisely on the orchard block.

Why do my numbers change when I switch units?

Slider values are converted using the exact conversion factor (1 inch = 25.4 mm). Small rounding differences (< 0.1 inch) may appear due to slider step sizes -- this does not affect the underlying calculation, which always uses exact millimeter values internally.

Why is the winter irrigation slider turning red?

The slider turns red when the winter irrigation value exceeds the soil's field capacity. Any water above the maximum is wasted -- it drains below the root zone. The warning shows the maximum useful value.

What does 'Water-limited canopy' mean?

This yellow warning appears when the total water supply (rain + winter + summer) is not enough to support the current canopy size. It shows the maximum NDVI the available water can sustain. Consider increasing irrigation or expect reduced canopy vigor.

Can I use PISA-CA for young orchards?

The tool can be used, but results should be interpreted with caution. Young orchards have shallow root systems that don't match the NDVI-based root depth model. Consider manually setting a shallow rooting depth (e.g. 40-60 cm) and reducing the expected water use.

Why does the search box take me to the wrong location?

If you enter coordinates (like '35.289, -119.178'), make sure you use the format: latitude, longitude (with a comma separator). The search box automatically detects coordinate input and bypasses the geocoder. If you type a city name that matches multiple places, the geocoder picks the most common result.

How do I save my water budget?

Click "Print Water Budget Report" and use your browser's "Save as PDF" option in the print dialog. This creates a one-page PDF with all your settings, the budget table, and the chart.

Contact

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