**ERA API User Manual**

**Overview**

The ERA API provides access to experimental data (e.g., soil moisture, crop yields) and supports registration/login. This manual covers key endpoints for accessing data and managing authentication.

**Base URL**

* **Local**: http://localhost:8000
* **Production (after deployment)**: https://api-lte.cassini.rothamsted.ac.uk

**Authentication**

To access protected endpoints (e.g., /api/observations/), obtain an API token via registration, login, or GitHub OAuth.

**1. Register a New User**

* **Endpoint**: POST /api/register/
* **Description**: Create a new user account to obtain an API token.
* **Request**:
* {
* "username": "your\_username",
* "password": "your\_password",
* "email": "your\_email@example.com"
* }
* **Response**:
* {
* "token": "Token <your\_token>",
* "user": {"username": "your\_username", "email": "your\_email@example.com"}
* }
* **Example**:
* curl -X POST http://localhost:8000/api/register/ -d '{"username": "testuser", "password": "testpass123", "email": "test@example.com"}' -H "Content-Type: application/json"

**2. Login**

* **Endpoint**: POST /api/login/
* **Description**: Log in to obtain an API token.
* **Request**:
* {
* "username": "your\_username",
* "password": "your\_password"
* }
* **Response**:
* {
* "token": "Token <your\_token>",
* "user": {"username": "your\_username"}
* }
* **Example**:
* curl -X POST http://localhost:8000/api/login/ -d '{"username": "testuser", "password": "testpass123"}' -H "Content-Type: application/json"

**3. GitHub OAuth ( still need more testing)**

* **Endpoint**: GET /auth/login/github/
* **Description**: Authenticate via GitHub to obtain an API token.
* **Usage**:
  1. Visit http://localhost:8000/auth/login/github/.
  2. Sign in to GitHub and authorize the app.
  3. Redirects to /api/after-auth/ with Token <your\_token>.
* **Note**: Ensure your GitHub OAuth App callback URL is set to http://localhost:8000/auth/complete/github/ (or http://cassini.rothamsted.ac.uk/auth/complete/github/ in production).

**Data Access**

**4. Retrieve Observations**

* **Endpoint**: GET /api/observations/
* **Description**: Fetch experimental data (e.g., soil moisture, crop yields) with filters.
* **Parameters**:
  + experiment (e.g., "Broadbalk")
  + variable (e.g., "Soil Moisture")
  + plot\_year (e.g., "2023")
  + crop (e.g., "Wheat")
  + page (e.g., "1" for pagination, 50 items per page)
* **Headers**:
  + Authorization: Token <your\_token>
* **Response**:
* {
* "count": 100,
* "next": "http://localhost:8000/api/observations/?page=2&...",
* "previous": null,
* "results": [
* {"id": 1, "experiment": "Broadbalk", "variable": "Soil Moisture", ...},
* ...
* ]
* }
* **Example**:
* curl -X GET "http://localhost:8000/api/observations/?experiment=Broadbalk&variable=Soil%20Moisture&plot\_year=2023&crop=Wheat&page=1" -H "Authorization: Token <your\_token>"

**Notes**

* **Authentication**: Always include the Authorization header with your token for protected endpoints.
* **Pagination**: Use page parameter for large datasets (50 items per page).
* **Errors**: Check response messages for issues (e.g., {"error": "Authentication failed"}).
* **Production**: Replace http://localhost:8000 with https://api-lte.cassini.rothamsted.ac.uk after deployment.

**Support**

For issues, contact the ERA API team at ???@rothamsted.ac.uk.