

CloudKit Schema - Record Types and Fields

Record Type	Field Name	Data Type	Description
JubileeEvent	location	Location	Geographic coordinates of the jubilee event
	intensity	String	Event intensity level (Minor, Moderate, Major, Extreme)
	startTime	Date/Time	When the jubilee event began
	endTime	Date/Time	When the jubilee event ended
	verificationStatus	String	Verification status (Unverified, Verified, Expert-Verified)
	reportCount	Int64	Number of user reports for this event
	temperature	Double	Air temperature at time of event (°F)
	humidity	Double	Humidity percentage at time of event
	windSpeed	Double	Wind speed at time of event (mph)
	windDirection	Int64	Wind direction in degrees (0-360)
	waterTemperature	Double	Water temperature at time of event (°F)
	dissolvedOxygen	Double	Dissolved oxygen level (mg/L)
	salinity	Double	Water salinity level (ppt)
	tide	String	Tide condition (High, Low, Rising, Falling)
	moonPhase	String	Moon phase during event
UserReport	jubileeEventId	String	Reference to associated JubileeEvent record
	userId	String	ID of user who submitted the report
	timestamp	Date/Time	When the report was submitted
	description	String	User's description of the event
	intensity	String	User's assessment of event intensity
	photoURLs	String List	URLs of photos attached to the report
	location	Location	Where the user observed the event
CommunityPost	userId	String	ID of user who created the post
	userName	String	Display name of the post author
	title	String	Title of the community post
	description	String	Main content of the post
	location	Location	Location relevant to the post
	photoURLs	String List	URLs of photos attached to the post
	marineLifeTypes	String List	Types of marine life mentioned in post
	likeCount	Int64	Number of likes the post has received
	commentCount	Int64	Number of comments on the post
	createdAt	Date/Time	When the post was created
UserProfile	appleUserID	String	Apple Sign-In user identifier

Record Type	Field Name	Data Type	Description
	email	String	User's email address
	displayName	String	User's chosen display name
	createdAt	Date/Time	When the user profile was created
PostLike	postId	String	Reference to the liked CommunityPost
	userId	String	ID of user who liked the post
	createdAt	Date/Time	When the like was created
PostComment	postId	String	Reference to the commented CommunityPost
	userId	String	ID of user who made the comment
	userName	String	Display name of the commenter
	text	String	Content of the comment
	createdAt	Date/Time	When the comment was created

CloudKit Implementation Notes

Database Organization

- **Public Database:** JubileeEvent, CommunityPost, PostLike, PostComment
- **Private Database:** UserProfile, UserReport (user's personal reports)
- **Shared Database:** Research collaboration data (future implementation)

Indexing Strategy

- **JubileeEvent:** Index on (startTime), (location), (intensity)
- **UserReport:** Index on (jubileeEventId), (timestamp)
- **CommunityPost:** Index on (createdAt), (location), (likeCount)
- **PostLike:** Composite index on (postId) + (userId)
- **PostComment:** Index on (postId), (createdAt)

Security & Permissions

- **Public Database:** Read access for all users, write access for authenticated users
- **Private Database:** Full access for record owner only
- **User Authentication:** Required for creating records, optional for reading public data

Data Validation Rules

- **Intensity:** Must be one of ["Minor", "Moderate", "Major", "Extreme"]

- **Coordinates:** Must be within Mobile Bay geographic bounds
- **Photos:** Maximum 3 photos per report/post, 5MB per image
- **Text Fields:** Description max 1000 characters, title max 100 characters